Public Health England

Central Manchester University Hospitals NHS Foundation Trust

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Manchester Medical Microbiology Partnership

User Guide

A-Z of tests

Please use the hyperlinks (control and click on the links) to navigate the user guide

1.0 INTRODUCTION 3
Roles and functions 3
2.0 LOCATION OF MMMP AND CONTACT DETAILS 4
3.0 QUALITY ASSURANCE 5
3.1 QUALITY POLICY 6
4.0 INFORMATION FOR HEALTHCARE PROFESSIONALS 7
4.1 OPENING HOURS, CLINICAL ADVICE AND RESULTS LINE 7
4.1.1 MICROBIOLOGY DEPARTMENT, MANCHESTER ROYAL INFIRMARY 7
4.1.2 MICROBIOLOGY DEPARTMENT, UNIVERSITY HOSPITAL SOUTH MANCHESTER 10
4.1.3 MOLECULAR MICROBIOLOGY 11
4.1.4 VIROLOGY DEPARTMENT 12
4.1.5 PHE MENINGOCOCCAL REFERENCE UNIT 15
4.1.6 VACCINE EVALUATION UNIT 16
4.1.7 MYCOLOGY REFERENCE CENTRE MANCHESTER 19
4.2 LABELLING OF SAMPLE CONTAINERS 20
4.3 HOW TO COMPLETE REQUEST FORM 20
4.4 TRANSPORT SERVICES (INCLUDING ANY SPECIAL HANDLING NEEDS – E.G HG3 PATHOGENS) 27
4.4.1 TRANSPORTATION OF ROUTINE SAMPLES TO THE LABORATORY 27
4.4.2 URGENT SAMPLES 27
4.4.3 SAMPLES SUBMITTED OUT OF HOURS (ON-CALL) 27
4.4.4 OUTBREAK SAMPLES 27
4.4.5 PACKAGING OF HIGH RISK SAMPLES 29
5.0 SPECIMEN ACCEPTANCE POLICY 29
6.0 REPERTOIRE OF TESTS (A-Z) 32
7.0 REFERRAL LABORATORIES 205
8.0 FEEDBACK ON OUR PATHOLOGY SERVICES AND COMPLAINTS PROCEDURE 219
9.0 PATIENT CONSENT DISCLOSURE 219
10.0 RESEARCH & DEVELOPMENT 221

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1.0 INTRODUCTION

The Manchester Medical Microbiology Partnership (MMMP) is a collaboration between Central Manchester University Hospitals NHS Foundation Trust (CMFT) and Public Health England (PHE). In May 2013, Trafford Microbiology Services successfully transferred to the MMMP.

The objective of this partnership is to provide Central and South Manchester with a unified Microbiology Service embracing all aspects of medical and public health microbiology.

The MMMP is made up of the following Departments and Units:

- Microbiology Department, CMFT
- Microbiology Department, Wythenshawe Hospital, University Hospital of South Manchester
- Virology Department (including Molecular Diagnostics), CMFT
- Meningococcal Reference Unit (MRU), CMFT
- PHE Vaccine Evaluation Unit (VEU), CMFT
- Mycology Reference Centre Manchester (MRCM), Wythenshawe Hospital, University Hospital of South Manchester

1.1 Roles and functions

- To provide a clinical and public health microbiology service, including an infection control service, jointly managed by CMFT and PHE
- Provide microbiology support and advice to the Public Health England Centres (PHECs), Local Authorities and Port Health Authorities in the North West
- Provide expert microbiological advice during outbreaks and other incidents of infectious disease
- Contribute to the development of local, regional and national guidelines and policies
- Provide community and health care-associated infection (HCAI) surveillance data
- Host the following PHE units:
  - Meningococcal Reference Unit (MRU), which provides national microbiological and surveillance data on meningococcal infections
  - Vaccine Evaluation Unit (VEU), which studies the efficacy of meningococcal, pneumococcal and other vaccines, e.g. human papillomavirus (HPV) vaccines
  - Sero-epidemiology Unit (SEU), which provides serological data on the epidemiology of infection
- Provide a *Clostridium difficile* ribotyping service (CDRN) for the North West
- Provide specialist virology and molecular diagnostic services for Greater Manchester, the North West and beyond

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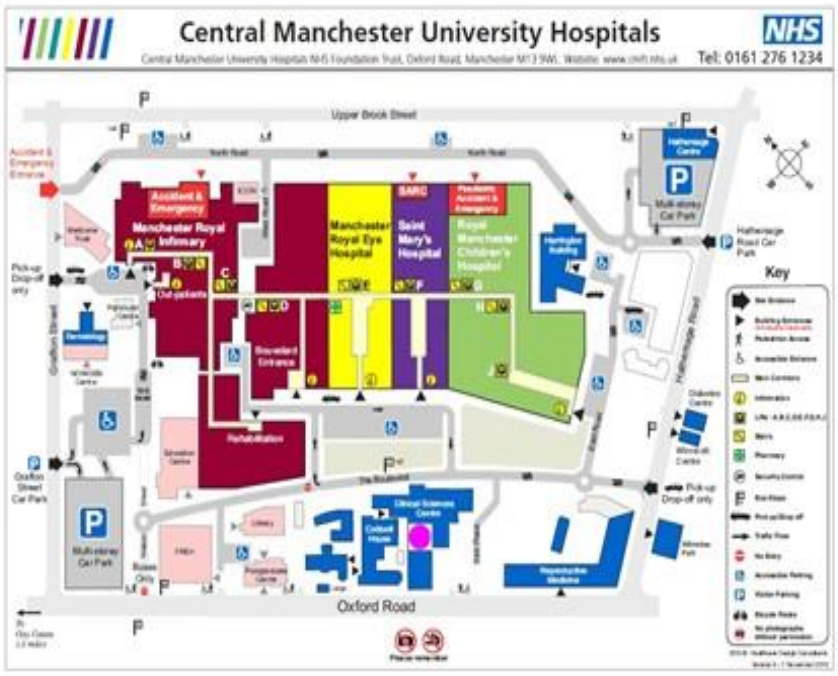
2.0 LOCATION OF MMMP AND CONTACT DETAILS

Microbiology services at CMFT are based in the Clinical Sciences Centre, marked by the pink dot on the map below. The CMFT site is an amalgam of Manchester Royal Infirmary, Manchester Royal Eye Hospital, St Marys Womens & Infants Hospital, Royal Manchester Childrens Hospital, University Dental Hospital and Trafford Hospitals.



The **Microbiology Department at Central Manchester Foundation Trust** is situated on the second and third floors of Clinical Science Buildings (CSB 1,2,3). The Meningococcal Reference Unit and Vaccine Evaluation Unit are also situated within the 2nd Floor of CSB 2.

The **Virology Department at Central Manchester Foundation Trust** is situated on the third floor of Clinical Science Buildings (CSB1 & CSB2). Specimen reception & serology are based in CSB1 and Molecular Diagnostics is based in CSB2.
The clinical sciences buildings can be accessed from The Boulevard during normal working hours. Visitors should report to reception on arrival.

The postal and DX addresses are as follows:

Manchester Medical Microbiology Partnership
PO Box 209
Clinical Sciences Centre
Manchester Royal Infirmary
Oxford Road
Manchester M13 9WL

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Manchester Medical Microbiology Partnership
DX6962410
Manchester 90 M

The **Microbiology Department at University Hospital of South Manchester** is situated in the Clinical Sciences Building at Wythenshawe Hospital on Southmoor Road. The postal and DX addresses are as follows:

Microbiology Department
Clinical Sciences Centre
Wythenshawe Hospital
Southmoor Road
Wythenshawe
Manchester M23 9LT

Manchester Medical Microbiology Partnership
DX6968006
Northenden 90 M

The Mycology Reference Centre Manchester (MRCM) is situated in the Education and Research Centre, Wythenshawe Hospital. The postal and DX addresses are as follows:

Mycology Reference Centre Manchester (MRCM)
2nd Floor Laboratory,
Education and Research Centre
Wythenshawe Hospital
Southmoor Road
Manchester M23 9LT

Manchester Medical Microbiology Partnership
DX6968006
Northenden 90 M

3.0 QUALITY ASSURANCE

The department has full Clinical Pathology Accreditation (CPA UK Reference No 0635) for microbiology services. Quality assurance schemes such as NEQAS, QCMD and IQA help make sure the department's high quality standards are maintained.

An experienced consultant team offers support to clinicians and service users 24 hours a day, seven days a week. The team provides information related to using the service, interpretation of test results and clinical advice on therapy, prophylaxis and immunisations.

Training is accredited by the Institute of Biomedical Science (IBMS) for biomedical scientist specialist training and by The Royal College of Pathologists for medical training. We also support Manchester Metropolitan University, delivering training in biomedical science and

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have a long-standing relationship with The University of Manchester for research and development and post-graduate training and supervision.

3.1 QUALITY POLICY

QUALITY POLICY OF THE MANCHESTER MEDICAL MICROBIOLOGY PARTNERSHIP

The Manchester Medical Microbiology Partnership (MMMP) is a collaboration between the Central Manchester University Hospitals NHS Foundation Trust (CMFT) and Public Health England (PHE). MMMP protects the population from infection by detecting, diagnosing, monitoring and controlling communicable diseases. MMMP is committed to providing a high quality clinical, analytical and advisory service. It provides Clinical Diagnostic Microbiology and Virology services, including Molecular Diagnostics. Specialist services on site include the PHE Meningococcal Reference Unit and the PHE Vaccine Evaluation Unit. MMMP aims to take into account the needs and requirements of its users and other stakeholders and to operate in a safe manner for staff, visitors and patients.

In order to ensure these aims are met the MMMP will:

- operate a quality management system designed to integrate the function of the organisation and its processes, procedures, resources and safety
- set measurable quality objectives and plans in order to implement this quality policy in line with the objectives of Central Manchester University Hospitals NHS Foundation Trust (CMFT) and the Public Health England (PHE).
- consult with users on a regular basis to ensure their needs and requirements are met
- ensure that all personnel are familiar with this policy and the quality manual
- review the quality policy for suitability and effectiveness at the annual management review
- commit to the health, safety and welfare of its entire staff. Visitors to the department will be treated with respect and due consideration will be given to their safety while on site
- commit to promoting a culture of continuing quality improvement
- uphold professional values and be committed to good professional practice and conduct.
- maintain confidentiality of information and records of service users, staff and patients.
- commit to comply with relevant environmental legislation and guidelines

The Partnership will comply with CPA (UK) Ltd and ISO 15189:2012 and is committed to:

- staff recruitment, training, development and retention at all levels to provide a full and effective service to its users
- the proper procurement and maintenance of such equipment and other resources as are needed for the provision of the service
- the collection, transport and handling of all specimens in such a way as to ensure the safe and correct performance of laboratory examinations and the safety of our staff and the general public
- the use of examination procedures that are fit for use and will ensure the highest achievable quality of all tests performed within the resources available
- reporting results of examinations in ways which are timely, confidential, accurate and clinically useful
- the assessment of user satisfaction, by the use of regular clinical liaison meetings, satisfaction surveys and face to face meetings with external users
- ensure ongoing evaluation and improvement by the process of internal audit, external quality assessment and by the identification of non conformities with procedures and standards
- take into consideration the needs and requirements of patients by liaison and surveys of patient groups wherever possible.
-

Signed on behalf of the Manchester Medical Microbiology Partnership:

Dr A J Turner **Date: 30.05.14**
Head of Unified Services

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4.0 INFORMATION FOR HEALTHCARE PROFESSIONALS

4.1 OPENING HOURS, CLINICAL ADVICE AND RESULTS LINE

4.1.1 MICROBIOLOGY DEPARTMENT, CMFT

Laboratory opening hours

The laboratory is open:

Monday to Friday: 8.00am -5.00pm*

*Outside of working hours contact the on call Biomedical Scientist through Switchboard (0161 276 1234) for urgent requests.

Saturday: 8.30am – 12.30noon
Sunday: 8.30am – 12.30noon

The total workload is approximately 600,000 specimens per annum.

Clinical Advice

For clinical advice during normal working hours (Mon – Fri): Tel: 0161-276-6333

- For CMFT users please check the ICE interface for results in the first instance.
- General culture results are available 24 hours after specimen receipt (at the earliest), and sensitivities usually after a further 24 hours. For samples such as blood cultures and CSF, the Microbiologist will usually inform the clinicians of initial significant results as soon as they are known.
- Internal users, please refer to the antibiotic guidelines, in the first instance, for the commoner microbiology enquiries. These are available on the intranet at the following address: http://cmhtweb.cmht.nwest.nhs.uk/directorates/micro/default.asp
- New or junior doctors should discuss queries with their own clinical team, before calling the Medical Microbiologist.
- For Medical Microbiology advice for the more complicated cases, the Medical Microbiology team should be contacted on extension 66333 or via switchboard.
- For Infection Control advice alone, the Infection Control Nurses can be contacted on extension 64042 or via switchboard.
- Clinical advice on Mycology results/problems is available from Dr A Dodgson (0161) 276 6010 or Dr K Dodgson (0161) 276 5746

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Additional tests

- Additional tests can be requested by contacting the laboratory; most samples are stored for a maximum of 7 days.

Results

All urgent results will be telephoned when requested or if there is a clinically significant resultA Microbiologist or BMS will contact the requesting ward. Results are not routinely faxed but this can be arranged on a restricted basis.

For other results/enquiries during normal working hours: Tel: 0161-276-4281

Out-of-hours Service

The Microbiology out-of-hours service is an Emergency Service.

A limited number of investigations are offered out of normal laboratory hours (i.e. 17.00 – 08.30 weekdays, 12.30 to 08.30 Saturdays, and 08.30 to 08.30 Sundays and Bank Holidays) where urgent results are required. The duty BMS can be contacted through MRI switchboard (0161 276 1234).

The following tests are available as appropriate:

- Paediatric Emergency Admission urines Children <3yrs old
- Paediatric Emergency Admission urines Children >3yrs old with a Dipstick positive for Leucocytes or Nitrates
- CSF (Cell Count & Culture) Samples requiring TB investigations cannot be processed out of hours, Ascitic / Peritoneal Fluid (Cell Count & Culture)
- Joint Fluids (Gram stain & Culture) Crystal investigations are performed by Histopathology
- Sterile Fluids from all areas will be considered for processing after discussion with the BMS on call, samples requiring investigations that require lone containment level 3 working will not be performed.

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Contact Details

Name	External Numbers	Internal Numbers
Dr Andrew Dodgson Clinical Lead, Consultant Microbiologist, Infection Control Doctor	(0161) 276 6010	66010
Dr Ed Kaczmarski Lead Consultant Microbiologist for Christie Hospital	(0161) 276 5746	65746
Dr Debasis Sanyal Consultant Microbiologist (Paediatrics)	(0161) 276 5089	65089
Dr Ahmed Qamruddin **Consultant Microbiologist**	(0161) 276 4282	64282
Dr Kirsty Dodgson Consultant Clinical Scientist Deputy Infection Control Doctor	(0161) 276 5746	65746
Dr Barzo Faris **Consultant Microbiologist**	(0161) 746 2469	
Mrs Geraldine Featherstone Microbiology Secretary	(0161) 276 5686	65686
Specialist Registrars Office	(0161) 276 6333	66333
Mr Bernard Wood PHE Regional Head of Laboratory Operations/ Head BMS MMMP	(0161) 276 4420	64420
Mrs Rachel Jones Laboratory Manager	(0161) 276 5747	65747
Mr Malcolm Armstrong Deputy Laboratory Manager	(0161) 276 8822	68822
Mrs Katherine Mather Deputy Laboratory Manager	(0161) 276 4909	64909
Fax	(0161) 276 5744	65744
Hospital Switchboard	(0161) 276 1234	0

4.1.2 MICROBIOLOGY DEPARTMENT, UNIVERSITY HOSPITAL SOUTH MANCHESTER

The Microbiology User Manual for the Wythenshawe site is contained within the UHSM Pathology Handbook.

This is accessed via the UHSM intranet and also by internet at:

http://www.uhsm.nhs.uk/pathology/Pages/home.aspx

The total workload is approximately 315,000 specimens per annum.

Contact details

Name	External Numbers
Dr Ibrahim Hassan, Head of Department Consultant Microbiologist	(0161) 291 4756
Dr Barbara Isalska Consultant Microbiologist Infection Control Doctor	(0161) 291 2892
Dr Mairi Cullen Consultant Microbiologist	(0161) 291 2884
Dr Stephanie Thomas Consultant Microbiologist	(0161) 291 4792
Dr Sawsan Awad Consultant Microbiologist	(0161) 291 2884
Specialist Registrar	(0161) 291 4784/4863
Mr David Weston Laboratory Manager	(0161) 291 4759
Mrs Angela Downes Deputy Laboratory Manager	(0161) 291 4758
Secretary/Office	(0161) 291 4862/4754
Fax	(0161) 291 4755
Laboratory Enquiries	(0161) 291 4819
Hospital Switchboard	(0161) 998 7070

4.1.3 MOLECULAR MICROBIOLOGY

Introduction

The MMMP offers a wide range of molecular diagnostic assays for viral, bacterial, fungal and parasite infections. We are continuing to develop a microbiology molecular diagnostic service that will provide a wide range of clinically relevant diagnostic assays exploiting the real time PCR platforms available within the MMMP. The molecular diagnostic services are developed by senior clinical scientists and routine assays undertaken by biomedical scientific staff. Within this unit there is an active programme in developing new molecular approaches to diagnosis and characterisation of pathogens. Consultant microbiology staff have a leading role in establishing the clinical utility of the service.

The total workload is approximately 300,000 specimens (600,000 tests) per annum.

Laboratory opening hours

The laboratory is open:

Monday to Friday: 8.30am - 5.00pm

Saturday: 8.30am - 12.30pm

Sunday (October to March): 09:00 to 1:00pm

Clinical Advice

A full clinical advice service is maintained 24 hours a day.

For advice during normal working hours: Tel: 0161-276-8853/5686.

For Clinical advice out of hours: Tel: 0161-276-1234 and ask for the duty Consultant Virologist.

For technical advice during normal working hours: Tel: 0161-276-8833

For testing out of hours

There is no routine 'out of hours' service for molecular diagnostics.

Results

Result enquiries can be made through the microbiology call centre.

Tel: 0161-276-8788/8854

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Results will only be telephoned when requested or if there is a clinically significant result.

For Contact Details see here

4.1.4 VIROLOGY DEPARTMENT

Introduction

The Clinical Virology Department of the MMMP is situated on the third floor of the Clinical Sciences Centre at CMFT. The Virology department provides a comprehensive screening and diagnostic service, including specialised testing, for most of the North West of England. Some of the reference facilities are offered nationally.

The total workload is in excess of 150,000 samples (300,000 tests) per annum.

Laboratory opening hours

The laboratory is open:

Monday to Friday: 8.30am - 5.00pm

Saturday: 8.30am - 12.30pm

A restricted urgent testing service is available (see 10.7, below) outside normal working hours by contacting the on-call Biomedical Scientist (BMS) via the Hospital Switchboard - 0161 276 1234.

Clinical Advice

A full clinical advice service is maintained 24 hours a day.

For advice during normal working hours: Tel: 0161-276-8853.

For Clinical advice out of hours: Tel: 0161-276-1234 and ask for the duty Consultant Virologist.

Results

Result and other enquiries can be made to the microbiology call centre.

Result enquiries: Tel: 0161-276-8788/8854

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Results will only be telephoned when requested or if there is a clinically significant result.

Notification of Delayed Results

Where results will be delayed beyond expected turn round times due to circumstances beyond our control, a duty consultant will notify clinicians of such delays if it is believed that the delay will adversely affect a patient's management.

Out-of-hours Service

The Virology out-of-hours service is an emergency service.

A limited number of investigations are offered out of normal laboratory hours (i.e. 17.00 – 08.30 weekdays, 12.30 to 08.30 Saturdays, and 08.30 to 08.30 Sundays and Bank Holidays) where urgent results are required. The duty BMS can be contacted through MRI switchboard (0161 276 1234).

The following assays are available as appropriate:

Hepatitis B surface antigen
Hepatitis C antibody
HIV antigen/antibody
HTLV antibody
CMV IgG antibody
Hepatitis B core antibody (total)
Toxoplasma antibody
Varicella zoster IgG
Treponemal antibody
Legionella urinary antigen
Pneumococcal urinary antigen

Requests for additional tests

Additional tests can be requested by telephone or letter on samples received by the laboratory up to 2 years after the receipt of the sample, although it must be recognised that the archive sample available will have a limited volume and the antibody profile may be different to their current sample.

Issue of immunoglobulin (Ig)

Specific immunoglobulin for prophylaxis of hepatitis B and Varicella-zoster and normal immunoglobulin for prophylaxis of hepatitis A and measles are available. Specific immunoglubulin and vaccine are available for rabies as part of the national rabies immunoglobulin service.

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Contact the Consultant on call via the CMFT Switchboard (0161 276 1234) who will arrange issue with the duty BMS as appropriate.

Contact Details

Name	External Numbers	Internal Numbers
Dr Andrew Turner **Clinical Lead, Consultant Medical Virologist**	(0161) 276 8853	68853
Dr Ken Mutton **Consultant Medical Virologist**	(0161) 276 8853	68853
Dr Mubiraz Husain **Consultant Medical Virologist**	(0161) 901 4774	14774
Dr Louise Hesketh **Consultant Clinical Scientist**	(0161) 901 0188	10188
Dr Malcolm Guiver **Consultant Clinical Scientist, Head of Molecular Diagnostics**	(0161) 276 8853	68853
Miss Andrea Reid **Secretary**	(0161) 276 8853	68853
Miss Christel Matthews **Secretary**	(0161) 276 8787	68787
Mr Peter Tilston **Clinical Scientist – Resistance testing**	(0161) 276 8849	68849
Dr Alex Sargent **Clinical Scientist (HPV lead)**	(0161) 276 8680	68680
Mr Benjamin Brown **Clinical Scientist**	(0161) 276 8680	68680
Mr David Ellis **Laboratory Manager**	(0161) 276 8838	68838

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Mr Alan Lord **Deputy Laboratory Manager**	(0161) 276 8843	68843
Mr John Marsh **Deputy Laboratory Manager**	(0161) 276 8843	68843
Fax:	(0161) 276 8787/5744	68787/5744
Hospital Switchboard	(0161) 276 1234	0

4.1.5 PHE MENINGOCOCCAL REFERENCE UNIT

The Meningococcal Reference Unit User Manual and a copy of the request form are available from the PHE Website using the following link:

MRU User Manual

The total workload is approximately 16,000 specimens per annum

Name	External Numbers	Internal Numbers
Dr Ed Kaczmarski **Head of Unit**	(0161) 276 5746	65746
Prof Ray Borrow **Deputy Head of Unit**	(0161) 276 8850	68850
Dr Steve Gray Lead BMS	(0161) 276 6757	66757
Enquiries	(0161) 276 8788	68788
Fax:	(0161) 276 5744	65744
Hospital Switchboard	(0161) 276 1234	61234

Laboratory opening hours
The laboratory is open:

Monday to Friday: 8.30am - 5.30pm

Answerphone message redirection for Saturday am and urgent clinical enquiries

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4.1.6 VACCINE EVALUATION UNIT

The Vaccine Evaluation Unit (VEU) specialises in serological determination of immune responses to *Neisseria meningitidis* and *Streptococcus pneumoniae* either following vaccination or disease. It has international recognition for all of the assays that encompass serum bactericidal antibody assays and ELISA for all serogroups of *N. meningitidis* as well as offering determination of IgG concentrations for pneumococcal (serotype-specific), *Haemophilus influenzae* type b, tetanus and diphtheria. The VEU underpinned the implementation of the meningococcal serogroup C conjugate vaccine in the U.K. with performance of meningococcal serological assays and redefining the correlates of protection. Currently, the VEU is involved in a similar project that has led to the implementationof a serogroup A vaccine in Sub-Saharan Africa. The VEU is currently collaborating on studies with the Saudi Arabian Ministry of Health to inform on future immunisation policies. It offers a range of validated assays for meningococcal serogroup B and is involved in many vaccine trials both here and overseas. The pneumococcal serology assays are now widely used by clinicians as well as for vaccine trials and were incorporated into the vaccine surveillance of the impact of the pneumococcal conjugate vaccination programme for children in England, Wales and Northern Ireland. The VEU also now houses the Seroepidemiology Unit (SEU). VEU has been involved in serosurveys for pneumococcal antibodies, meningococcal serogroups A, C, Y and W as well as serogroup B serology and human papilloma IgG. VEU also evaluate new kits for the SEU. The total workload is approximately 200,000 assays per annum.

The VEU has an active research programme and encourages collaborations locally, nationally and internationally. Ongoing projects include novel platforms for multiplexing assays, immunoassays for Human Papilloma Virus. Nationally the VEU is a key player in the National Vaccine Evaluation Consortium and UK Paediatric Vaccine Group whilst internationally advises WHO on serological assays for meningococci together with strong links to most vaccine manufacturers who use the Unit as a reference centre. The VEU is also committed to training of staff from laboratories both nationally and internationally, particularly those from developing countries.

Laboratory opening hours

The VEU is open:

Monday to Friday: 8.00am - 5.00pm

Clinical Advice

A full clinical advice service is maintained.

For advice during normal working hours: Tel: 0161 276 6793 or 0161 276 5697 or 0161 276 6791

Results

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For general results/enquiries:

Tel: 0161 276 8854or 0161 276 8788

Out-of-hours Service

There is no out-of-hours service for the Vaccine Evaluation Unit.

For further information about the Sero-epidemiology Unit (SEU) please contact ezra.linley@phe.gov.uk

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Contact Details

Name	External Numbers	Internal Numbers
Prof Ray Borrow Head of VEU Consultant Clinical Scientist	(0161) 276 8850	68850
Dr Jamie Findlow Deputy Head of VEU Clinical Scientist	(0161) 701 5303	15303
Dr Emma Newton Clinical Serology **Clinical Scientist**	(0161) 276 6791	66791
Dr Ezra Linley SEU	(0161) 276 8842	68842
Mrs Nicola Boothman PA/Unit Administrator	(0161) 276 5697	65697
Mrs Nilofer Razzaq PA/Unit Administrator	(0161) 276 5697	65697
Mrs Debbie Cummings PA/Unit Administrator	(0161) 276 6793	66793
VEU Fax No:	(0161) 276 5744	
Postal Address:	**Vaccine Evaluation Unit MMMP, 2nd Floor CSB2, PO Box 209, Manchester Royal Infirmary Oxford Road, Manchester, M13 9WL**	
Courier Delivery Address:	**Vaccine Evaluation Unit MMMP, 2nd Floor CSB2, Manchester Royal Infirmary Oxford Road, Manchester, M13 9WL**	
DXAddress: DX6962410 Manchester 90 M	**Manchester Medical Microbiology Partnership**	

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4.1.7 MYCOLOGY REFERENCE CENTRE MANCHESTER

Introduction

The clinical Mycology Reference Centre Manchetser (MRCM) is situated on the second floor of the Education & Research Centre at Wythenshawe Hospital (UHSM Trust). The MRCM provides a specialist medical mycology service for the North West of England and further afield.

Antifungal and mycological advice can be offered on the diagnosis of disease, clinical management and care of patients.

The MRCM laboratory is open from 08.30 to 17.00 hours Monday to Friday.

Emergency medical advice can be obtained by contacting Professor D Denning, Dr P Newton, Dr R Richardson or the appropriate duty Consultant Microbiologist via the switchboard on (0161) 998 7070

Contact Details

Name	Phone Number(s)
Professor Malcolm Richardson Director of MRCM, and Consultant Clinical Mycologist	(0161) 291 2124 (laboratory) (0161) 291 5914 (Office) (0161) 291 5839 (Secretary) 07545994936 (Mobile)
Dr Caroline Moore Principal Clinical Scientist	(0161) 291 5839 (office) (0161) 291 2124 (laboratory)
Fax	(0161) 291 5806
General Enquiries/Results	**(0161) 291 2124**

Further information is available on the Mycology Reference Centre Manchester(MRCM) website at http://www.mycologymanchester.org.

All samples should be sent to the Microbiology Department, Wythenshawe Hospital who will ensure appropriate transportation to the Mycology Laboratory.

Additional Tests

Additional tests can be requested by telephoning or writing to the laboratory, although it must be recognised that the archive sample available will have a limited volume.

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4.2 LABELLING OF SAMPLE CONTAINERS

Please see the Blood Tube Guide (PDF, 210KB) for the selection of appropriate container for test, alternatively, please see the specimen containers in the **REPERTOIRE OF TESTS (A-Z)**

The MMMP will make every effort to ensure requests are processed in a safe and timely manner but it is essential that request forms and samples are labelled appropriately and legibly in compliance with the specimen acceptance policy. (See Specimen Acceptance Policy).
It is also important to clearly identify the investigations required with relevant supporting information.
If you have any doubts regarding this policy please ring the relevant department for further information.

Specimens will not be accepted for analysis if: -
• There is no unique identification of the patient i.e. they do not meet the minimum data set for identification
• There is an incorrect sample type or tube
• Incorrect transportation conditions
• Sample is received in a hazardous condition e.g. leaking or sharps attached.
• Sample or request form is unlabelled or incorrectly labeled with less than the minimum data sets for patient identification
• Mismatch of details between the form and sample(s)
• The information provided is illegible

4.3 HOW TO COMPLETE REQUEST FORM

4.3.1 Electronic Requesting (ICE requests)

Where this is available please use whenever possible as it enables more rapid receipt and processing within the laboratories. It is important to ensure that the correct ICE (barcoded) number is attached to the correct specimen and correct request form before placing inside the specimen bag.

Please ensure that you order the correct test and select the correct specimen type as failure to do this may lead to incorrect testing. The ICE requesting system will show those tests most commonly requested for Microbiology Services, should the test you require not be visible please contact the laboratory to check that the test is available.

This information is the same as that is required on handwritten request forms and should include clinical details and symptoms as well as information on antibiotic use, foreign travel, outbreaks, date of onset etc.

Where ICE requesting is not available, the following request forms should be used.

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4.3.2 Virology Request forms

You are **strongly** requested to use these new forms in preference to any other (including previous versions of Virology request forms: please destroy all previous versions) in order to improve the way in which your requests are dealt with.

Please note the following instructions for use; compliance with these will also **greatly improve** the **quality** of the service we can deliver to you and ensure the reports reach you in a **timely manner**.

a) There are now six types of request form:

(i) One for general Molecular Microbiology for GP's and Hospitals
(ii) One for general Serology for GP's and Hospitals
(iii) One specifically for Sexual Health Clinics (including FPC services).
(iv) One specifically for Antenatal screening services
(v) Dried blood spot
(vi) The Christie

b) Because the forms will be scanned electronically, it is important that:

- All information on the forms **must** be in **block capitals** and must be kept **within the boxed areas** provided. Please **do not** write over the lines of the boxed areas.
- The tests required are selected by marking the boxes with an "X".
- If addressograph labels are used (which we recommend), they should be placed within the "⌊" marks that surround this section of the form.
- All labels attached to the forms must be properly aligned in the appropriate position on the request form.
- DO NOT use or cover any of the areas that state "For Laboratory Use" – these areas are only for use by this laboratory

c) Details of our **specimen acceptance policy** can be found on the reverse of the form, along with other useful information.

Finally, we would like to **thank you** in anticipation of your cooperation in using these forms in the correct way, therefore, **greatly improving the quality and speed of the service** we can provide.

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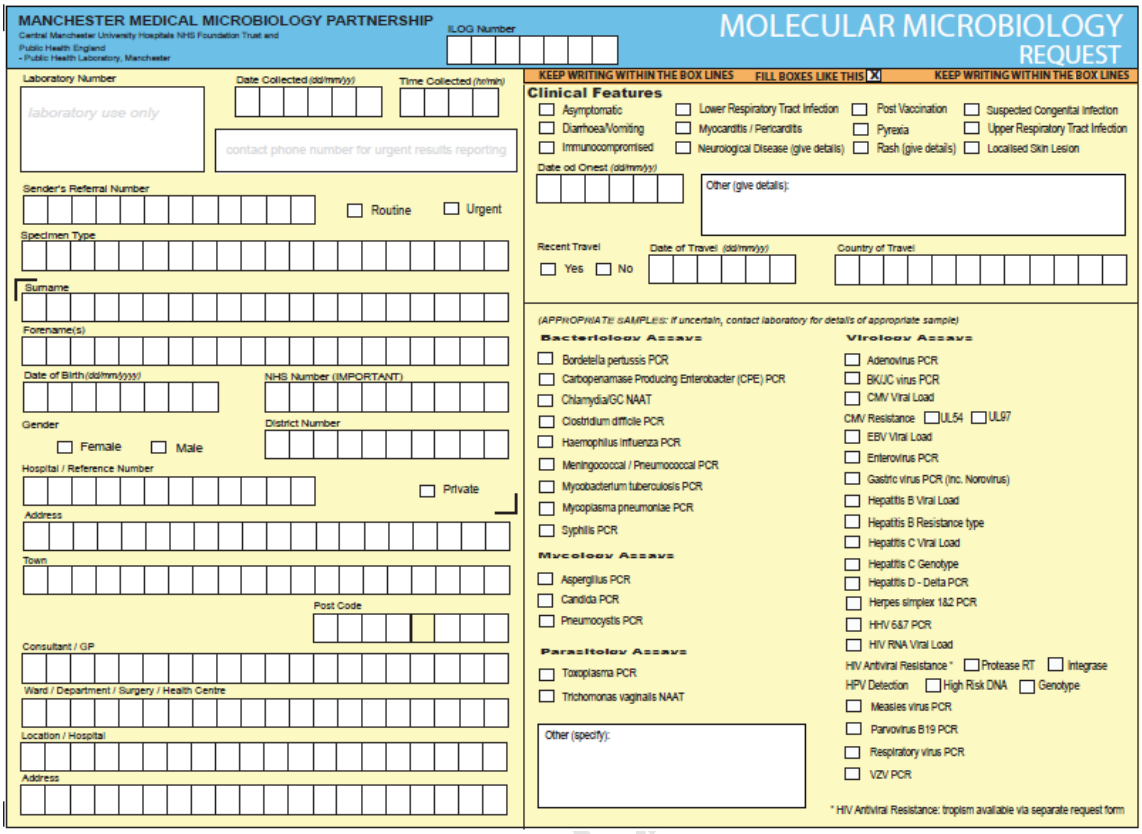

MANCHESTER MEDICAL MICROBIOLOGY PARTNERSHIP

Central Manchester University Hospitals NHS Foundation Trust and Public Health England - Public Health Laboratory, Manchester

ILOG Number

MOLECULAR MICROBIOLOGY REQUEST

Laboratory Number

laboratory use only

Date Collected (dd/mm/yy)

Time Collected (hr/min)

contact phone number for urgent results reporting

Sender's Referral Number

Routine Urgent

Specimen Type

Surname

Forename(s)

Date of Birth (dd/mm/yyyy)

NHS Number (IMPORTANT)

Gender

Female Male

District Number

Hospital / Reference Number

Private

Address

Town

Post Code

Consultant / GP

Ward / Department / Surgery / Health Centre

Location / Hospital

Address

KEEP WRITING WITHIN THE BOX LINES FILL BOXES LIKE THIS ☒ KEEP WRITING WITHIN THE BOX LINES

Clinical Features

Asymptomatic; Diarrhoea/Vomiting; Immunocompromised; Lower Respiratory Tract Infection; Myocarditis / Pericarditis; Neurological Disease (give details); Post Vaccination; Pyrexia; Rash (give details); Suspected Congenital Infection; Upper Respiratory Tract Infection; Localised Skin Lesion

Date od Onset (dd/mm/yy)

Other (give details):

Recent Travel Yes No

Date of Travel (dd/mm/yy)

Country of Travel

(APPROPRIATE SAMPLES: if uncertain, contact laboratory for details of appropriate sample)

Bacteriology Assays

- Bordetella pertussis PCR
- Carbopenamase Producing Enterobacter (CPE) PCR
- Chlamydia/GC NAAT
- Clostridium difficile PCR
- Haemophilus influenza PCR
- Meningococcal / Pneumococcal PCR
- Mycobacterium tuberculosis PCR
- Mycoplasma pneumoniae PCR
- Syphilis PCR

Mycology Assays

- Aspergillus PCR
- Candida PCR
- Pneumocystis PCR

Parasitology Assays

- Toxoplasma PCR
- Trichomonas vaginalis NAAT

Other (specify):

Virology Assays

- Adenovirus PCR
- BK/JC virus PCR
- CMV Viral Load
- CMV Resistance UL54 UL97
- EBV Viral Load
- Enterovirus PCR
- Gastric virus PCR (Inc. Norovirus)
- Hepatitis B Viral Load
- Hepatitis B Resistance type
- Hepatitis C Viral Load
- Hepatitis C Genotype
- Hepatitis D - Delta PCR
- Herpes simplex 1&2 PCR
- HHV 6&7 PCR
- HIV RNA Viral Load
- HIV Antiviral Resistance * Protease RT Integrase
- HPV Detection High Risk DNA Genotype
- Measles virus PCR
- Parvovirus B19 PCR
- Respiratory virus PCR
- VZV PCR

* HIV Antiviral Resistance: tropism available via separate request form

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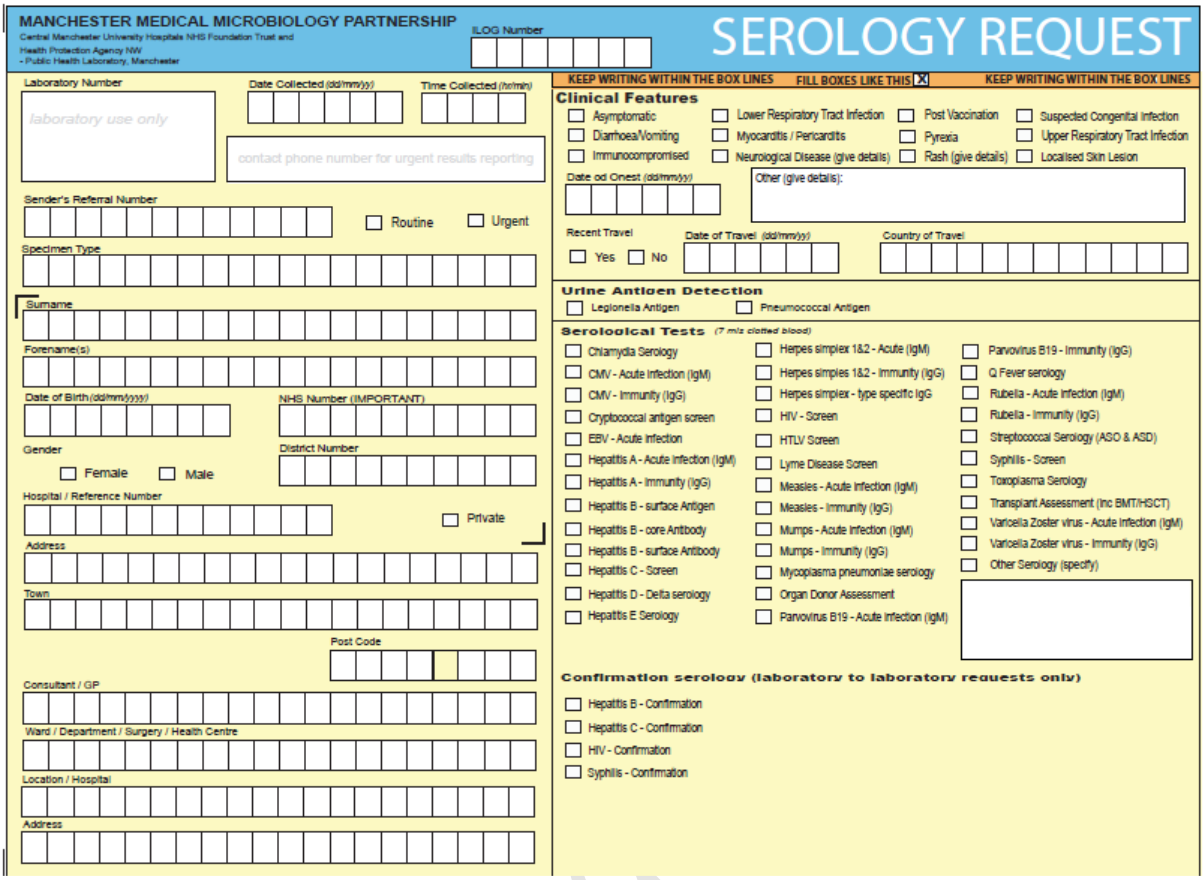

MANCHESTER MEDICAL MICROBIOLOGY PARTNERSHIP

Central Manchester University Hospitals NHS Foundation Trust and Health Protection Agency NW - Public Health Laboratory, Manchester

ILOG Number

SEROLOGY REQUEST

Laboratory Number — laboratory use only

Date Collected (dd/mm/yy)

Time Collected (hr/min)

contact phone number for urgent results reporting

Sender's Referral Number

☐ Routine ☐ Urgent

Specimen Type

Surname

Forename(s)

Date of Birth (dd/mm/yyyy)

NHS Number (IMPORTANT)

Gender ☐ Female ☐ Male

District Number

Hospital / Reference Number

☐ Private

Address

Town

Post Code

Consultant / GP

Ward / Department / Surgery / Health Centre

Location / Hospital

Address

KEEP WRITING WITHIN THE BOX LINES — FILL BOXES LIKE THIS ☒ — KEEP WRITING WITHIN THE BOX LINES

Clinical Features

☐ Asymptomatic ☐ Lower Respiratory Tract Infection ☐ Post Vaccination ☐ Suspected Congenital Infection
☐ Diarrhoea/Vomiting ☐ Myocarditis / Pericarditis ☐ Pyrexia ☐ Upper Respiratory Tract Infection
☐ Immunocompromised ☐ Neurological Disease (give details) ☐ Rash (give details) ☐ Localised Skin Lesion

Date od Onest (dd/mm/yy)

Other (give details):

Recent Travel ☐ Yes ☐ No

Date of Travel (dd/mm/yy)

Country of Travel

Urine Antigen Detection

☐ Legionella Antigen ☐ Pneumococcal Antigen

Serological Tests (7 ml/s clotted blood)

☐ Chlamydia Serology
☐ CMV - Acute Infection (IgM)
☐ CMV - Immunity (IgG)
☐ Cryptococcal antigen screen
☐ EBV - Acute Infection
☐ Hepatitis A - Acute Infection (IgM)
☐ Hepatitis A - Immunity (IgG)
☐ Hepatitis B - surface Antigen
☐ Hepatitis B - core Antibody
☐ Hepatitis B - surface Antibody
☐ Hepatitis C - Screen
☐ Hepatitis D - Delta serology
☐ Hepatitis E Serology
☐ Herpes simplex 1&2 - Acute (IgM)
☐ Herpes simples 1&2 - Immunity (IgG)
☐ Herpes simplex - type specific IgG
☐ HIV - Screen
☐ HTLV Screen
☐ Lyme Disease Screen
☐ Measles - Acute Infection (IgM)
☐ Measles - Immunity (IgG)
☐ Mumps - Acute Infection (IgM)
☐ Mumps - Immunity (IgG)
☐ Mycoplasma pneumoniae serology
☐ Organ Donor Assessment
☐ Parvovirus B19 - Acute Infection (IgM)
☐ Parvovirus B19 - Immunity (IgG)
☐ Q Fever serology
☐ Rubella - Acute Infection (IgM)
☐ Rubella - Immunity (IgG)
☐ Streptococcal Serology (ASO & ASD)
☐ Syphilis - Screen
☐ Toxoplasma Serology
☐ Transplant Assessment (Inc BMT/HSCT)
☐ Varicella Zoster virus - Acute Infection (IgM)
☐ Varicella Zoster virus - Immunity (IgG)
☐ Other Serology (specify)

Confirmation serology (laboratory to laboratory requests only)

☐ Hepatitis B - Confirmation
☐ Hepatitis C - Confirmation
☐ HIV - Confirmation
☐ Syphilis - Confirmation

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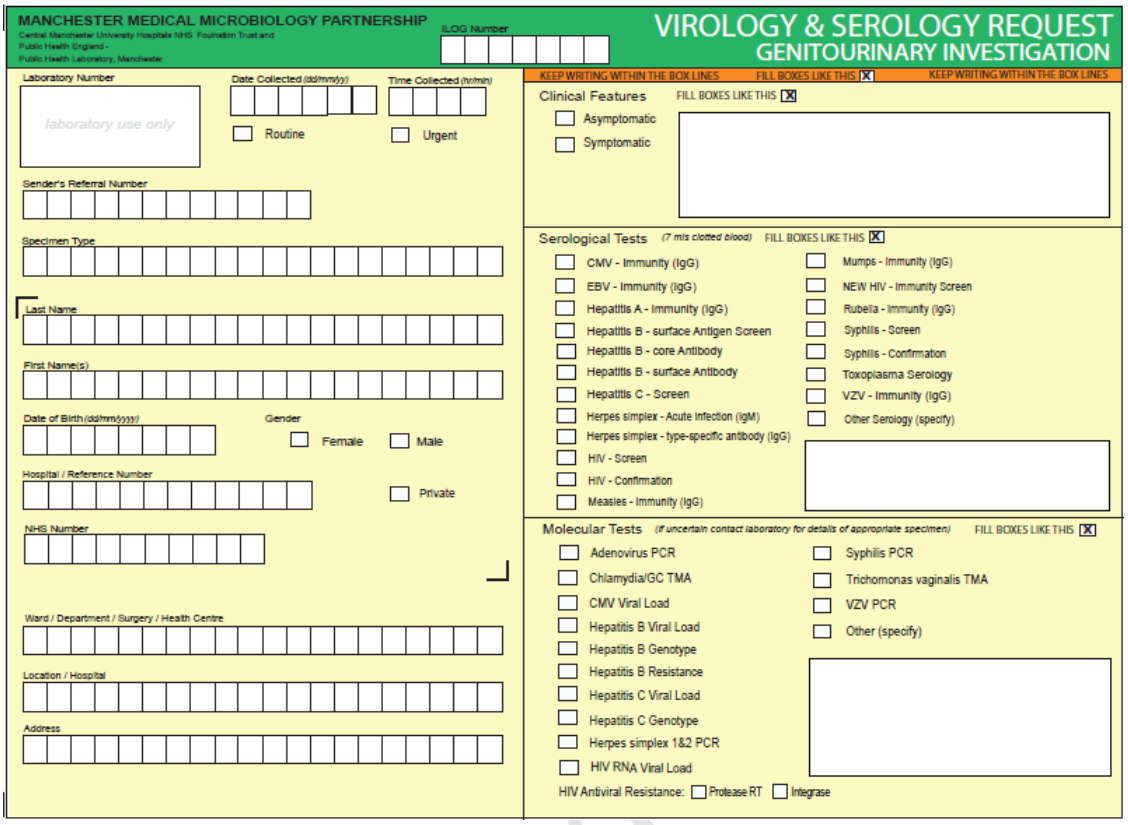


MANCHESTER MEDICAL MICROBIOLOGY PARTNERSHIP

Central Manchester University Hospitals NHS Foundation Trust and Public Health England - Public Health Laboratory, Manchester

ILOG Number

VIROLOGY & SEROLOGY REQUEST
GENITOURINARY INVESTIGATION

KEEP WRITING WITHIN THE BOX LINES | FILL BOXES LIKE THIS [X] | KEEP WRITING WITHIN THE BOX LINES

Laboratory Number: laboratory use only

Date Collected (dd/mm/yy)

Time Collected (hr/min)

Routine ☐ Urgent ☐

Sender's Referral Number

Specimen Type

Last Name

First Name(s)

Date of Birth (dd/mm/yyyy)

Gender: Female ☐ Male ☐

Hospital / Reference Number

Private ☐

NHS Number

Ward / Department / Surgery / Health Centre

Location / Hospital

Address

Clinical Features FILL BOXES LIKE THIS [X]

- Asymptomatic ☐
- Symptomatic ☐

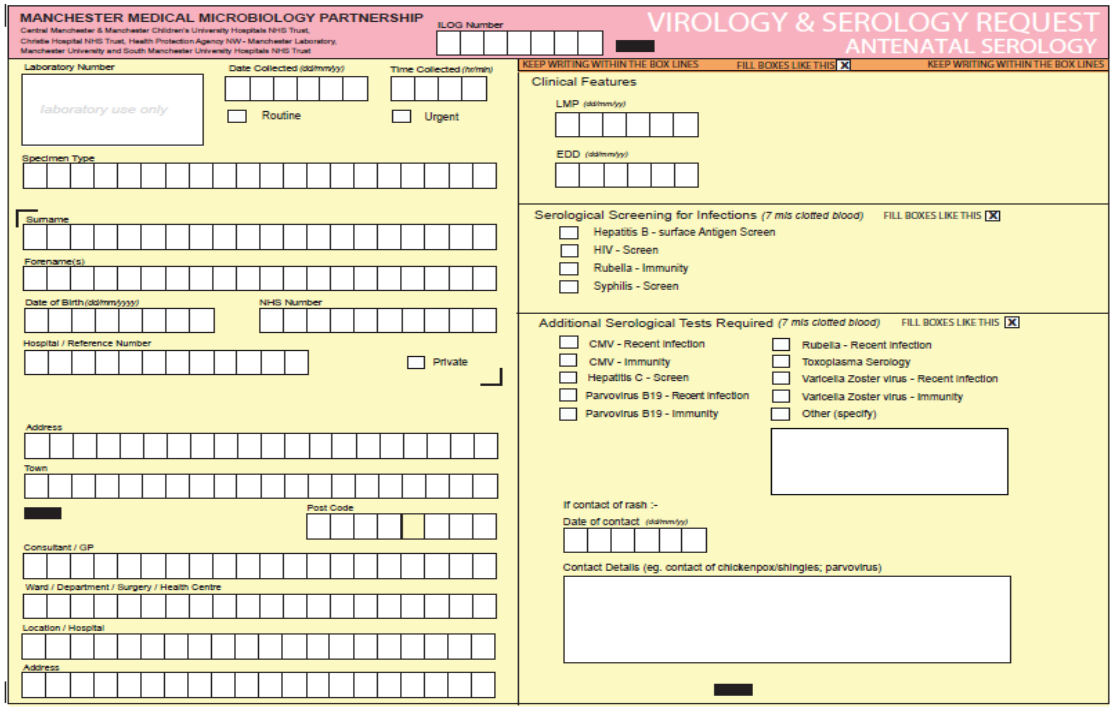
Serological Tests *(7 mls clotted blood)* FILL BOXES LIKE THIS [X]

- CMV - Immunity (IgG) ☐
- EBV - Immunity (IgG) ☐
- Hepatitis A - Immunity (IgG) ☐
- Hepatitis B - surface Antigen Screen ☐
- Hepatitis B - core Antibody ☐
- Hepatitis B - surface Antibody ☐
- Hepatitis C - Screen ☐
- Herpes simplex - Acute Infection (IgM) ☐
- Herpes simplex - type-specific antibody (IgG) ☐
- HIV - Screen ☐
- HIV - Confirmation ☐
- Measles - Immunity (IgG) ☐
- Mumps - Immunity (IgG) ☐
- NEW HIV - Immunity Screen ☐
- Rubella - Immunity (IgG) ☐
- Syphilis - Screen ☐
- Syphilis - Confirmation ☐
- Toxoplasma Serology ☐
- VZV - Immunity (IgG) ☐
- Other Serology (specify) ☐

Molecular Tests *(If uncertain contact laboratory for details of appropriate specimen)* FILL BOXES LIKE THIS [X]

- Adenovirus PCR ☐
- Chlamydia/GC TMA ☐
- CMV Viral Load ☐
- Hepatitis B Viral Load ☐
- Hepatitis B Genotype ☐
- Hepatitis B Resistance ☐
- Hepatitis C Viral Load ☐
- Hepatitis C Genotype ☐
- Herpes simplex 1&2 PCR ☐
- HIV RNA Viral Load ☐
- Syphilis PCR ☐
- Trichomonas vaginalis TMA ☐
- VZV PCR ☐
- Other (specify) ☐

HIV Antiviral Resistance: Protease RT ☐ Integrase ☐



MANCHESTER MEDICAL MICROBIOLOGY PARTNERSHIP

Central Manchester & Manchester Children's University Hospitals NHS Trust, Christie Hospital NHS Trust, Health Protection Agency NW - Manchester Laboratory, Manchester University and South Manchester University Hospitals NHS Trust

ILOG Number

VIROLOGY & SEROLOGY REQUEST
ANTENATAL SEROLOGY

KEEP WRITING WITHIN THE BOX LINES | FILL BOXES LIKE THIS [X] | KEEP WRITING WITHIN THE BOX LINES

Laboratory Number: laboratory use only

Date Collected (dd/mm/yy)

Time Collected (hr/min)

Routine ☐ Urgent ☐

Specimen Type

Surname

Forename(s)

Date of Birth (dd/mm/yyyy)

NHS Number

Hospital / Reference Number

Private ☐

Address

Town

Post Code

Consultant / GP

Ward / Department / Surgery / Health Centre

Location / Hospital

Address

Clinical Features

LMP (dd/mm/yy)

EDD (dd/mm/yy)

Serological Screening for Infections *(7 mls clotted blood)* FILL BOXES LIKE THIS [X]

- Hepatitis B - surface Antigen Screen ☐
- HIV - Screen ☐
- Rubella - Immunity ☐
- Syphilis - Screen ☐

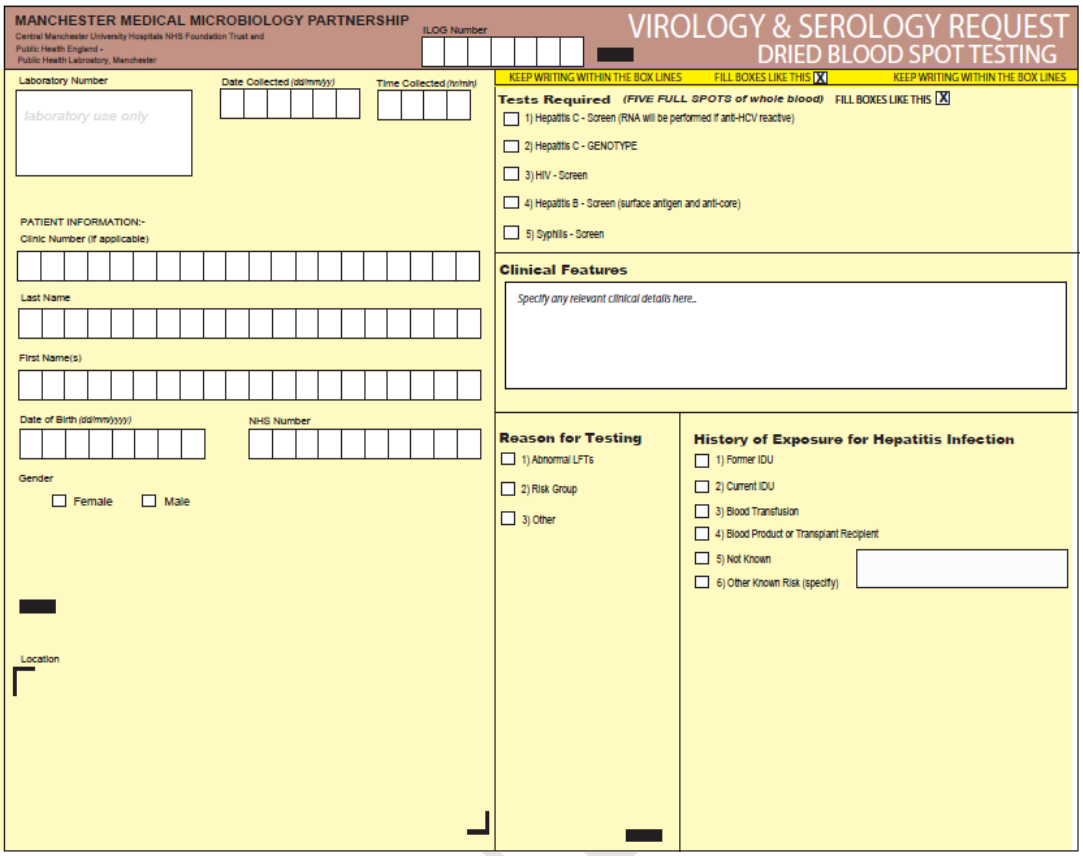
Additional Serological Tests Required *(7 mls clotted blood)* FILL BOXES LIKE THIS [X]

- CMV - Recent Infection ☐
- CMV - Immunity ☐
- Hepatitis C - Screen ☐
- Parvovirus B19 - Recent Infection ☐
- Parvovirus B19 - Immunity ☐
- Rubella - Recent Infection ☐
- Toxoplasma Serology ☐
- Varicella Zoster virus - Recent Infection ☐
- Varicella Zoster virus - Immunity ☐
- Other (specify) ☐

If contact of rash :-

Date of contact (dd/mm/yy)

Contact Details (eg. contact of chickenpox/shingles; parvovirus)



MANCHESTER MEDICAL MICROBIOLOGY PARTNERSHIP

Central Manchester University Hospitals NHS Foundation Trust and Public Health England - Public Health Laboratory, Manchester

ILOG Number

VIROLOGY & SEROLOGY REQUEST
DRIED BLOOD SPOT TESTING

KEEP WRITING WITHIN THE BOX LINES FILL BOXES LIKE THIS [X] KEEP WRITING WITHIN THE BOX LINES

Laboratory Number

laboratory use only

Date Collected (dd/mm/yy)

Time Collected (h/min)

PATIENT INFORMATION:-

Clinic Number (if applicable)

Last Name

First Name(s)

Date of Birth (dd/mm/yyyy)

NHS Number

Gender

Female Male

Location

Tests Required *(FIVE FULL SPOTS of whole blood)* FILL BOXES LIKE THIS [X]

1) Hepatitis C - Screen (RNA will be performed if anti-HCV reactive)
2) Hepatitis C - GENOTYPE
3) HIV - Screen
4) Hepatitis B - Screen (surface antigen and anti-core)
5) Syphilis - Screen

Clinical Features

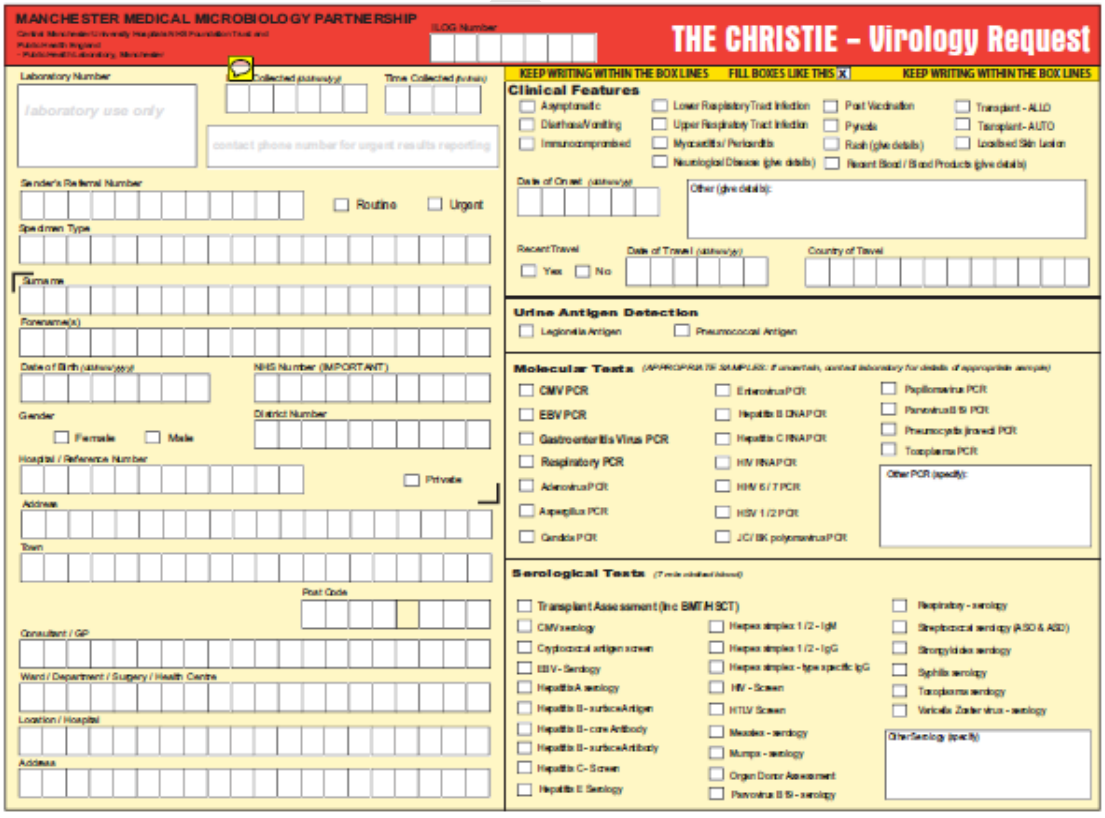
Specify any relevant clinical details here..

Reason for Testing

1) Abnormal LFTs
2) Risk Group
3) Other

History of Exposure for Hepatitis Infection

1) Former IDU
2) Current IDU
3) Blood Transfusion
4) Blood Product or Transplant Recipient
5) Not Known
6) Other Known Risk (specify)



MANCHESTER MEDICAL MICROBIOLOGY PARTNERSHIP

ILOG Number

THE CHRISTIE – Virology Request

KEEP WRITING WITHIN THE BOX LINES FILL BOXES LIKE THIS [X] KEEP WRITING WITHIN THE BOX LINES

Laboratory Number

laboratory use only

Collected (dd/mm/yy)

Time Collected (h/min)

contact phone number for urgent results reporting

Sender's Referral Number

Routine Urgent

Specimen Type

Surname

Forename(s)

Date of Birth (dd/mm/yy)

NHS Number (IMPORTANT)

Gender

Female Male

District Number

Hospital / Reference Number

Private

Address

Town

Post Code

Consultant / GP

Ward / Department / Surgery / Health Centre

Location / Hospital

Address

Clinical Features

Asymptomatic
Diarrhoea/Vomiting
Immunocompromised
Lower Respiratory Tract Infection
Upper Respiratory Tract Infection
Myocarditis / Pericarditis
Neurological Disease (give details)
Post Vaccination
Pyrexia
Rash (give details)
Recent Blood / Blood Products (give details)
Transplant - ALLO
Transplant - AUTO
Localised Skin Lesion

Date of Onset (dd/mm/yy)

Other (give details):

Recent Travel Yes No

Date of Travel (dd/mm/yy)

Country of Travel

Urine Antigen Detection

Legionella Antigen
Pneumococcal Antigen

Molecular Tests *(APPROPRIATE SAMPLES: if uncertain, contact laboratory for details of appropriate samples)*

CMV PCR
EBV PCR
Gastroenteritis Virus PCR
Respiratory PCR
Adenovirus PCR
Aspergillus PCR
Candida PCR
Enterovirus PCR
Hepatitis B DNA PCR
Hepatitis C RNA PCR
HIV RNA PCR
HHV 6 / 7 PCR
HSV 1 / 2 PCR
JC / BK polyomavirus PCR
Papillomavirus PCR
Parvovirus B 19 PCR
Pneumocystis jiroveci PCR
Toxoplasma PCR

Other PCR (specify):

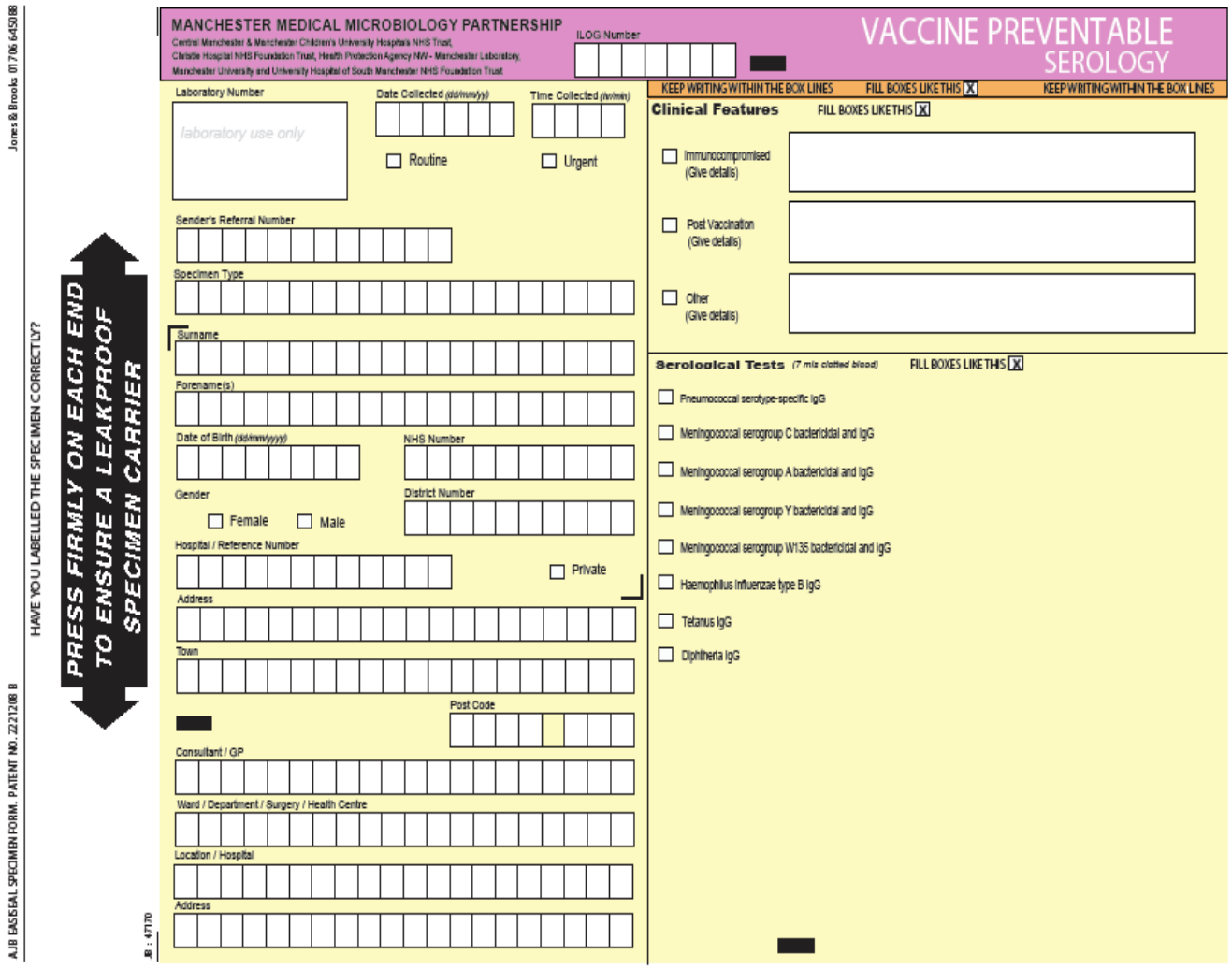
Serological Tests *(Tests validated in-house)*

Transplant Assessment (inc BMT/HSCT)
CMV serology
Cytotoxical antigen screen
EBV - Serology
Hepatitis A serology
Hepatitis B - surface Antigen
Hepatitis B - core Antibody
Hepatitis B - surface Antibody
Hepatitis C - Screen
Hepatitis E Serology
Herpes simplex 1 / 2 - IgM
Herpes simplex 1 / 2 - IgG
Herpes simplex - type specific IgG
HIV - Screen
HTLV Screen
Measles - serology
Mumps - serology
Organ Donor Assessment
Parvovirus B 19 - serology
Respiratory - serology
Streptococcal serology (ASO & ASD)
Strongyloides serology
Syphilis serology
Toxoplasma serology
Varicella Zoster virus - serology

Other Serology (specify)

4.3.3 VEU Request Forms

The forms for the requesting of VEU investigations have been developed to be consistent with other MMMP request forms. You are **strongly** requested to use these new forms in preference to any other (including previous versions of VEU request forms: please destroy all previous versions) in order to improve the way in which your requests are dealt with.



4.4 TRANSPORT SERVICES (INCLUDING ANY SPECIAL HANDLING NEEDS – E.G HG3 PATHOGENS)

4.4.1 TRANSPORTATION OF ROUTINE SAMPLES TO THE LABORATORY

All users of these laboratory services are advised to refer to "Transport of Infectious Substances - Best Practice Guidance for Microbiology Laboratories" on the www.dh.gov.uk website for up to date information on the correct procedures for submitting samples.

All specimens should be transported to the laboratory as rapidly as possible after collection to avoid compromising results. Specimens may be transported via normal portering rounds during the normal working day. Generally, specimens that are not sent within two hours of taking (**excluding blood cultures**) must be stored in a fridge at +4°C until transported to the laboratory.

Non-urgent specimens collected outside routine laboratory working hours may be stored overnight in the refrigerator, with the exception of blood cultures. **Blood cultures should never be refrigerated** but sent directly to the laboratory reception. Please contact the laboratory if there are specific questions regarding transportation of specimens.

4.4.2 URGENT SAMPLES

If a result is required urgently and the sample will arrive during working hours the laboratory MUST be notified by telephone so that we can prioritise your request. The result will be phoned through to the requesting doctor so please ensure that contact details are provided on the request form.

4.4.3 SAMPLES SUBMITTED OUT OF HOURS (ON-CALL)

Urgent specimens out of hours should not be sent before agreement with the laboratory on-call staff. Urgent specimens must be sent to the laboratory immediately and arrangements made with the portering service. All samples should be packaged and transported as above. If you need to submit a sample out of normal working hours for testing on-call please contact the Biomedical Scientist on-call via the hospital switchboard (0161 276 1234).

4.4.4 OUTBREAK SAMPLES

In addition to its clinical diagnostic microbiology role, the PHE lead laboratory in Manchester provides a range of public health microbiology services. These include:

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- A full range of tests to investigate any event or outbreak of possible public health significance in the community
- Advice on the best diagnostic strategies to be adopted
- Advice on interpretation of test results and additional investigations that may be helpful
- Support to incident/outbreak investigation teams
- Prompt communication of results in agreement within published turnaround times
- Follow up/clearance testing of patients or contacts of patients in whom organisms of public health importance are detected.
- Support for trusts/HPUs in the specialist investigation of health care associated infection

The laboratory is able to deal with samples from outbreaks arising in primary or secondary care and there is a single notification system in place to inform the laboratory of all types of outbreaks e.g. respiratory, enteric.

More detailed information can be found in the Public Health Microbiology User Services Handbook (including the outbreak request referral form) at http://www.PHE.org.uk/ProductsServices/MicrobiologyPathology/SpecialistMicrobiologyServices/PublicHealthLaboratories/PublicHealthLabsNorthWest/

4.4.5 PACKAGING OF HIGH RISK SAMPLES

High-risk groups can include patients suffering or thought to be suffering from:

- HIV infection
- Hepatitis B
- Hepatitis C
- E.coli O157
- Mycobacterium tuberculosis (TB)
- Salmonella typhi (Typhoid fever)
- Coccidioides immitis
- All other Category 3 and 4 organisms (Advisory Committee on Dangerous Pathogens)
- I.V. drug-use
- patients who have had recent foreign travel with unexplained high pyrexia

NB. Specimens **MUST** be labelled with “Danger of Infection” stickers on the specimen, bag and form. The form must be folded to ensure confidentiality. The specimen must be sealed in the plastic transport bag. The specimen must then be placed in a secondary biohazard plastic bag and sealed.

To protect all health care workers requests for investigations on high risk samples should be the minimum required for diagnosis and good management. Great care must be taken in obtaining specimens, and equipment such as needles and blades must be immediately

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disposed of safely, in approved sharps boxes. Should a spillage of blood, fluids or tissue occur this should be made safe and disposed of, no matter what the risk to the patient.

Viral haemorrhagic fever: ACDP algorithm and guidance on management of patients, available on hyperlink below:

http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/ViralHaemorrhagicFever/Guidelines/

5.0 SPECIMEN ACCEPTANCE POLICY

This policy ensures adequate identification criteria for Pathology specimens and request forms in order for them to be accepted by the laboratory for analysis. It is the requesters responsibility to ensure that all details are correct, clearly written and that the specimen details match those on the form and patient wrist band (if applicable).

Inadequately or inaccurately labelled specimens or forms will not be accepted unless they are considered to be 'unrepeatable'. A classification of 'unrepeatable' will be on an individual basis and in these cases the requester may be required to come to the laboratory to amend their request information and to document that they have done so.

Any labelling discrepancy will be included on the pathology report. Inadequate or inaccurate labelling results in delays before pathology results are available and hence affects patient care.

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Mandatory Labelling Requirement	Action by Laboratory if requirement not met
Specimens MUST be labelled with a minimum of 3 unique identifiers from: unique identification number (eg hospital number) Last name First name Date of birth The **request form** data **MUST** match the above information on the **specimen** or be labelled with another suitable unique identifier. Drug administered, dose, time of last dose, time of specimen in relation to dose for therapeutic drug monitoring **Multiple specimens** taken at different times on a patient **MUST** be labelled on the specimen container with the time (24 hr clock) when the specimen is taken. The **request form** should be labelled accordingly.	No analysis will be performed. The event may be reported as an incident on the Trust incident report system Where the specimen is repeatable/ reproducible, no analysis will be performed and the specimen will be discarded. Where the specimen is unrepeatable/ unreproducible, the risk to the patient of rejection of the specimen must be weighed against the risk of acceptance of a wrongly labelled specimen, local procedures will be followed. Laboratory Medicine will accept no responsibility for specimens analysed which initially failed to meet the acceptance criteria and will issue a disclaimer on such reports.
The request form data MUST match the above specimen information Last name First name Date of birth/unique identification number **Request forms SHALL** also contain: the patient's location/destination for the report (or a location code) Tests required Name of Consultant or GP Name of the requester and contact number (bleep or extension) Patient gender Date and time of specimen collection Anatomical site and type of specimen (where relevant) **All relevant clinical information** Patient address for GP requests	A lack of patient or specimen information may result in the laboratory not conducting the analysis / examination Examples could include: no swab site indicated no dates and times of sampling no clinical details given location for report delivery not given It may not be possible to issue a report or to interpret results. Appropriate comments will be made on the report where this can be issued.

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Good practice demands the provision of more than the minimum of information.

The use of NHS number is becoming more prevalent and will be considered as an essential identifying criterion in future policy. The DLM is currently reviewing ways in which this can be implemented.

Anonymous/Uniquely Identified Specimens and Requests

In certain circumstances, patient identification details are intentionally hidden or substituted with particular ID numbers (eg. Sexual Health, Clinical trials, donor specimens), in such instances, a properly coded identifier must be used in place of the patient lastname&firstname.

Clinical & Epidemiological Information

To ensure samples can be safely and appropriately tested in the laboratory, information including details of foreign travel, symptoms and known or suspected contact with other patients known to have communicable disease is important.

For example, samples likely to contain high risk pathogens [as described by the Advisory Committee for Dangerous Pathogens] are handled at a higher containment level to safeguard both laboratory staff and other downstream workers.

The information is also of benefit to the patient ensuring that appropriate testing is performed to safeguard the patient and benefit their patient journey.

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6.0 REPERTOIRE OF TESTS (A-Z)

ABCDEFGHIJKLMNOPQRSTUVW X Y Z

Find a test or clinical condition using the A-Z list. With each test we provide the following information where appropriate:

Name of test and clinical condition	Measurement units	Biological reference units	Clinical decision points	Type and volume of sample
Collection container	Specimen transport	Turnaround time	Factors known to significantly affect the results	Examinations sent to referral clearly identified

For more information on any of these tests see the Lab Tests Online UK website. Almost all the examinations that we use are NICE accredited UK Standards for Microbiology Investigations (SMI) hosted by by Public Health England (formerly Health Protection Agency); see UK Standards For Microbiology Investigations

A

Abscesses and Deep-Seated Wound Infections (Bacteriology)
Acanthamoeba (Bacteriology)
Acute haemorrhagic cystitis (Molecular Microbiology)
Adenovirus PCR (Molecular Microbiology)
Adenovirus (Respiratory Infection)(Molecular Microbiology)
Adenovirus 40/41 (Enteric) PCR (Molecular Microbiology)
Anti-HCVantibody screen and confirmation (Virology)
Anti-Hepatitis Bs antibody (Virology)
Anti-HIV 1 and 2 antibody and p24 antigen screen (Virology)
ASO
Aspergillus PCR (Molecular Microbiology)
Astrovirus PCR – enteric (Molecular Microbiology)
Avian influenza (Molecular Microbiology)

B

Bacteraemia
Bacteriuria
Bordetella pertussis (Bacteriology)
Bordetella pertussis PCR (molecular microbiology)
Bartonella(Virology referral)
Biopsies (Bacteriology)
BK virus PCR (Molecular Microbiology)
Blastomyces(Virology referral)

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Blepharitis
Blood culture (Bacteriology)
Bloodstream Infection
Bocavirus PCR (Molecular Microbiology Referral)
Brucella (Virology referral)
Burns

C

Campylobacter serology (Virology referral)
Candida PCR (Molecular Microbiology)
Candida precipitins (Virology referral)
Candidosis
CAPD (Bacteriology)
Carbapenemase producing enterobacteriaceae screen (Bacteriology)
Carbapenemase producing enterobacteriaceae screen (Wythenshawe Laboratory)
Cellulitis
Cerebrospinal fluid
Chickenpox
Chlamydia Antibodies
Chlamydia and Gonococcal TMA (Aptima) (Molecular Microbiology)
Chlamydia TMA confirmation (Virology)
Chlamydia/Gonococcal (Virology)
Clostridium difficile (Bacteriology)
CMV (Cytomegalovirus) IgG (Virology)
CMV (Cytomegalovirus) IgM (Virology)
CMV (Cytomegalovirus) IgG avidity (Virology)
CMV (Cytomegalovirus) viral load (Molecular Microbiology)
CMV (Cytomegalovirus)genotypic antiviral Resistance
Coccidioides (Virology referral)
Conjunctivitis (Bacteriology)
Contact Lens (Bacteriology)
Corneal Scrape (Bacteriology)
Corneal Scrape (Virology)
Coxiella burnetii – see Q fever
CPE screen (Bacteriology)
CPE screen (Wythenshawe Laboratory)
Cryptococcus antigen (Virology)
CSF - Microcopy/culture (Bacteriology)
Culture (Bacteriology)
Culture: Wounds – Skin, Superficial, Non-surgical (Bacteriology)
Cystic Fibrosis (Bacteriology)

D

Dermatological specimens – hair, skin,nails
Diphtheria IgG antibody determination (Vaccine Evaluation Unit)
Dried Blood Spot Hepatitis B core antibody (Virology)
Dried Blood Spot Hepatitis B surface antigen (Virology)
Dried blood Spot Hepatitis C antibody (Virology)
Dried blood Spot Hepatitis C RNA Screening (Virology)
Dried blood Spot Hepatitis C Genotyping (Virology)
Dried Blood Spot HIV Ag/Ab (Virology)
Dried Blood Spot Syphilis antibody (Virology)

Controlled document

Dysuria

E

Ear (Bacteriology)
Ebola
EBV (Epstein Barr virus) viral load (Molecular Microbiology)
EBV VCA IgG – screening (Virology)
EBV VCA IgM – screening (Virology)
EBV (EBNA) (Virology)
Ecthyma gangrenosum
Ehrlichia IF (Virology referral)
Enteric Virus Panel (Molecular Microbiology)
Enterovirus and parechovirus (Molecular Microbiology)
Eye (Bacteriology)
Eye Virology ie Molecular

F

Faeces - Clostridium difficile (Bacteriology)
Faeces - culture/microscopy (Bacteriology)
Faeces culture - Clostridium difficile screen (Bacteriology)
Fluids (Bacteriology)
Folliculitis

G

Galactomannan (Aspergillus antigen) (Virology referral)
Gastric Biopsy for *H.pylori* (Bacteriology)
Genital specimens (Bacteriology)
Glucan(Mycology)
Gonococcal TMA confirmation (Virology)

H

Haematuria
Haemophilus influenzae PCR (Molecular Microbiology)
Haemophilus influenzae type b antibody (Vaccine Evaluation Unit)
Helicobacter pylori stool antigen (Bacteriology)
Helicobacter pylori in Gastric Biopsies (Bacteriology)
Hepatitis A IgG (Virology)
Hepatitis A IgM (Virology)
Hepatitis B confirmation (Virology)
Hepatitis B core antibodies(Virology)
Hepatitis B coreIgM (Virology)
Hepatitis B core antibody – Dried Blood Spot (virology)
Hepatitis B e antigen (Virology)
Hepatitis B e antibody (Virology)
Hepatitis Bgenotypic antiviral resistance and genotyping (Molecular Microbiology)
Hepatitis B surface antibody (Virology)
Hepatitis B surface antigen (Virology)
Hepatitis B surface antigen – Dried Blood Spot (Virology)
Hepatitis B viral load Molecular (Virology)
Hepatitis B virus Genotyping and Resistance Markers (Molecular Microbiology)
Hepatitis C confirmation (Virology)

Uncontrolled document

Hepatitis C screen (Virology)
Hepatitis C viral load (Molecular Microbiology)
Hepatitis C virus Genotyping (Molecular Microbiology)
Hepatitis C Dried Blood Spot (Virology)
Hepatitis D (delta) antibody (Virology)
Hepatitis E IgG (Virology referral)
Hepatitis E IgM (Virology referral)
Herpes simplex 1/2 antibody (type specific, IgM and total antibody) (Virology)
Herpes simplex virus types 1 and 2 PCR (Molecular Microbiology)
Histoplasma (Virology referral)
HIV confirmation (Virology)
HIV Integrase Resistance (Virology)
HIV P24 antigen and neutralization (Virology)
HIV Resistance (Molecular Microbiology)
HIV screen (Virology)
HIV screen 4th generation: HIV1 and 2 antibody and p24 antigen (Virology)
HIV screen - same day (Virology)
HIV Tropism prediction (Molecular Microbiology)
HIV Viral load (Molecular Microbiology)
HIV Ag/Ab Dried Blood Spot (Virology)
HIV Resistance Markers (Molecular Microbiology)
HTLV 1 and 2 antibody (Virology)
Human Herpes virus 6 & 7 (Molecular Microbiology)
Human Papillomavirus PCR (Molecular Microbiology)

I

Impetigo
Infective endocarditis
Influenza A
Influenza B
Intravascular cannulae (Bacteriology)
Invasive infection with Aspergillus(Molecular Microbiology)
Invasive infection with Candida (Molecular Microbiology)

J

JC virus (Molecular Microbiology)
Joint Fluids (Bacteriology)

K

L

Legionella urinary antigen detection (Virology)
Leptospira (Virology referral)
Lyme Disease (Referral at present, but this service will be offered later this year)

M

Measles IgG (Virology)
Measles IgM (Virology)
Measles virus PCR (Molecular Microbiology)
Meningitis
Meningococcal DNA detection by PCR (multiplex with Pneumococcal DNA PCR) (Molecular

Controlled document

Microbiology)
Meningococcal Serology (Bacteriology)
Metapneumovirus
Molecular subtyping of isolates (Meningococcal Reference Unit)
Mouth swab
MRSA screen (Bacteriology)
Mumps IgG (Virology)
Mumps IgM (Virology)
Mycobacteria - microscopy/culture (Bacteriology)
Mycobacterium PCR (Bacteriology)
Mycology culture (Bacteriology)
Mycology microscopy (Bacteriology)
Mycoplasma PCR (Molecular Microbiology Referral)
Mycoplasma pneumoniae particle agglutination (Virology)

N

Neisseria meningitidis: Functional antibody to serogroups A, C, W and Y by internationally standardised serum bactericidal antibody assays (Vaccine Evaluation Unit)
Functional antibody to Neisseria meningitidis serogroup B by Serum Bactericidal Antibody Assay (SBA) – (Vaccine Evaluation Unit)
Neisseria meningitidis isolate characterisation (Meningococcal Reference Unit)
Neisseria meningitidis: Serogrouping and outer membrane typing (Meningococcal Reference Unit)
Neisseria meningitidis Minimum inhibitory concentration (Meningococcal Reference Unit)
Neisseria meningitidis PorA sequencing from cultures (Meningococcal Reference Unit)
Neisseria meningitidis serology (Vaccine Evaluation Unit)
Neonatal Sepsis
Norovirus PCR (Molecular Microbiology)
Nose Swab (Bacteriology)

O

Otitis externa
Otitis media
Ova, Cysts and Parasites (Bacteriology)

P

Paronychia
Parotitis
Parvovirus B19 IgG (Virology)
Parvovirus B19 IgM (Virology)
Parvovirus B19 viral load (Molecular Microbiology)
Peritoneal fluids culture and microscopy (Bacteriology)
Pernasal swab (for pertussis) (Bacteriology)
Pharyngitis
Pneumococcal PCR (Molecular Microbiology)
Pneumococcal serotype-specific IgG (Vaccine Evaluation Unit)
Pneumococcal urinary antigen detection (Virology)
Pneumocystis jirovecii PCR (Molecular Microbiology)
Polyoma viruses (BK) (Molecular Microbiology)
Polyoma viruses (JC) (Molecular Microbiology)
Polysaccharide antigen detection (Meningococcal Reference Unit)
Posaconazole Level (Mycology)
Pregnancy tests (urine) (Bacteriology)

Controlled document

Progressive multifocal leucoencephalopathy
Prosthetic valve endocarditis (PVE)
Pus (Bacteriology)
Pyuria

Q

Q FeverEIA IgG and IgM (Virology)
Q Fever Serology and PCR - Referral

R

Respiratory specimens (Bacteriology)
Respiratory Screen (Molecular Microbiology)
Respiratory virus PCR (Molecular Microbiology)
Rhinovirus
Rotavirus PCR - enteric (Molecular Microbiology)
RSV (Respiratory Syncytial Virus)
Rubella IgG (Virology)
Rubella IgM (Virology)
Rubella Avidity – (Virology referral)

S

Sapovirus PCR - enteric (Molecular Microbiology)
Sepsis
Sialadenitis
Skin, Superficial, Non-surgical Wounds (Bacteriology)
Sputum (Bacteriology)
Staphylococcal serology - AST (Virology referral)
Sterile Fluids (Bacteriology)
Streptococcal serology (including anti-DNaseB) (Virology)
Streptococcus pneumoniae serology (Vaccine Evaluation Unit)
Syphilis antibody (Virology)
Syphilis confirmationincluding immunoblot
Syphilis IgM (Virology)

T

TB examination (microscopy) (Bacteriology)
Tetanus antibodies (Vaccine Evaluation Unit)
Throat Swab (Bacteriology)
Tips (Bacteriology)
Tissue (Bacteriology)
Toxoplasma PCR (Molecular Microbiology)
Toxoplasma serology (IgG) (Virology)
Toxoplasma serology (IgM) (Virology)
Toxoplasma serology (Avidity) (Virology)
Treponema pallidum (syphilis) PCR (Molecular Microbiology)
Treponema pallidum confirmation (Virology)
Treponema pallidum screen (Virology)
Trichomonas vaginalis (Virology)

U

Ulcers

Controlled document

Urinary Tract Infection
Urine - cell count (Bacteriology)
Urine Culture (Bacteriology)

V

Varicella Zoster IgG (Virology)
Varicella Zoster IgM (Virology)
Varicella Zoster virus PCR (Molecular Microbiology)
Vincent's angina
Viral Haemorragic Fever (VHF)

W

Whooping Cough
Wounds – Skin, Superficial, Non-surgical (Bacteriology)

Controlled document

Abscesses and Deep-Seated Wound Infections (Bacteriology)

Abscesses are accumulations of pus in the tissues and any organism isolated from them may be of significance. They occur in many parts of the body as superficial infections or as deep-seated infections associated with any internal organ.

General Information

Back to Index

Collection container (including preservatives)	Use aseptic technique. Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags. Avoid accidental injury when pus is aspirated. Collect swabs into Amies transport medium with charcoal and transport in sealed plastic bags.
Collection	Collect specimens before antimicrobial therapy where possible. Samples of pus are preferred to swabs. However, pus swabs are often received (when using swabs, the deepest part of the wound should be sampled, avoiding the superficial microflora). Unless otherwise stated, swabs for bacterial and fungal culture should then be placed in Amies transport medium with charcoal. Collect specimens other than swabs into appropriate CE marked leak proof containers and place in sealed plastic bags.
Specimen type	Abscess pus, abscess swab, deep-seated pus swab, post-operative wound swab, wound exudates.
Specimen transport	Specimens should be transported and processed as soon as possible. The volume of specimen influences the transport time that is acceptable. Large volumes of purulent material maintain the viability of anaerobes for longer.
Minimum volume of sample	Minimum volume of 1mL of pus. Swabs should be well soaked in pus.
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	24 hrs	**Turn round time to Final result (calendar days)**	48 -72 hrs

Controlled document

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	The recovery of anaerobes is compromised if the transport time exceeds 3 hr

Back to Index

Controlled document

Adenovirus (Molecular Microbiology)

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof container
Collection	EDTA Blood (EDTA Tube), Eye swab (Virus Transport Media)
Specimen transport	Ambient or refrigerated Compliance with current postal and transportation regulations is essential. Clinical samples should be collected into a leak-proof container in a sealed plastic bag. Appropriate hazard labelling according to local policy should be applied. Specimens should be transported and processed as soon as possible.
Minimum volume of sample	Minimum volume 500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at room temperature.

Laboratory Information

Measurement units	Threshold cycle (CT)		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

Controlled document

Aspergillus PCR (Molecular Microbiology)

General Information Back to Index

Collection container (including preservatives)	CE marked leak proof containeror 5mL EDTA blood collection tube
Specimen Type	EDTA Blood , Sputum, BAL, CSF
Specimen transport	Ambient or refrigerated Transport at ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Type and volume of sample	**Disseminated infection with Aspergillus spp** Aspergillus PCR - 5mL of EDTA blood. This test cannot be performed on serum or plasma. mL **Pulmonary infection with Aspergillus spp** A minimum of 1mL of a bronchoalveolar lavage in a sterile screw-capped plastic container should arrive at the laboratory within 1 working day. The sample should not be frozen, but should be stored at 4^{O}C before dispatch, and kept cool during transport to the laboratory. Non invasive samples such as sputum and EDTA-blood may be used if BAL is unobtainable. **Fungal infections of the central nervous system** A minimum of 0.5mL of whole CSF. Do not centrifuge. Use a small capacity screw capped container.
Special precautions	Samples should be stored at 4^{O}C and dispatched as soon as possible after being drawn. If longer storage is unavoidable, serum or plasma may be stored frozen, but should not be repeatedly frozen and thawed. In special circumstances, 0.5mL of serum or plasma can be tested, but for such small volumes avoid using a large container; use a small capacity container with a screw cap, such as an Eppendorff tube.

Controlled document

Laboratory Information

Measurement units	Threshold cycle (CT)		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	4 days	**Turn round time to Final result (calendar days)**	5 days if urgent please contact the laboratory

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

Controlled document

BK virus PCR (Molecular Microbiology)

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof container or 5mL EDTA blood collection tube
Specimen Type	EDTA whole blood, CSF, urine
Specimen transport	Compliance with current postal and transportation regulations is essential. Clinical samples should be collected into a leak-proof container in a sealed plastic bag. Appropriate hazard labelling according to local policy should be applied. Specimens should be transported and processed as soon as possible. If processing is delayed refrigeration is preferable to storage at room temperature.
Minimum volume of sample	Minimum volume 500µl
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	Copies/mL		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

Controlled document

Blood Cultures (Bacteriology)

Bloodstream Infection, Sepsis, Neonatal Sepsis, Infective endocarditis, Prosthetic valve endocarditis (PVE), Bacteraemia.

The Blood Culture system can also be used for small volumes of sterile fluid to aid the recovery of fastidious organisms, for example but not limited to Vitreous aspirates, Joint Fluids (Prosthetic & Natural), Cardiac pacemaker site aspirates, Stem Cell fluids. The FAN (green top) bottle contains a charcoal neutralising agent and is suitable for PD fluids.

General Information

Back to Index

Collection container (including preservatives)	Collect specimens in BactAlert bottle using aseptic technique
Specimen Type	Venous blood, arterial blood, peripheral blood, sterile fluids
Collection	A blood culture set is defined as one aerobic (Blue Top) and one anaerobic(Purple top) bottle. For infants and neonates, a single aerobic bottle (Yellow top) may be requested. Small volume sterile fluids such as Pacemaker fluids & Stem cells can use single aerobic bottle (Yellow top). Take two consecutive sets from two separate venepuncture sites during any 24hr period for each septic episode. For neonates, take a single aerobic bottle or special low volume bottle. Take two sets during the first hour in cases of severe sepsis prior to commencing antibiotic treatment, provided this does not significantly delay antibiotic administration. Take at least three sets during a 24hr period where the patient has suspected infective endocarditis. If patient is on antibiotics, or fungaemia is suspected use a FAN (green top bottle)and anaerobic (purple top) bottle.

Control Document

Specimen transport (e.g at room temperature, or within 4 hrs)	Collect specimens before antimicrobial therapy where possible. Samples should be taken as soon as possible after a spike of fever. Samples should **not** be refrigerated. Inoculated bottles should be incubated as soon as possible, and within a maximum of four hours. The four hour turnaround time from collection to incubation for blood culture samples reflects their clinical significance.
Type and volume of sample	Adults – Purple top and Blue top bottles. Inoculate up to 10mL to each bottle. Children – Yellow top bottle. Inoculate up to 4mL Neonates – Yellow top bottle. Inoculate preferably 1-2mL. Do not exceed the manufacturers recommended maximum volume for each bottle as shown on label.
Special precautions	Use aseptic technique. Inspect the blood culture bottles for damage. Ensure that the blood culture bottles have not exceeded their expiry date. Do not re-sheathe needles.

Laboratory Information

Measurement units	Growth detected or not detected		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	24 hrs	**Turn round time to Final result (calendar days)**	6 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Any recent antimicrobial therapy can have a significant effect on blood culture results by decreasing the sensitivity of the test. This may be of particular importance in those patients receiving prophylactic antibiotics and who are at high risk of bloodstream infections. If patients have received previous antimicrobial treatment, bacteraemia should be considered even if blood culture results are negative. There is a direct relationship between blood volume and yield, with approximately a 3% increase in yield per mL of blood cultured. False negatives may occur if inadequate blood culture volumes are submitted.

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Limitations

It is estimated that 2-5% of positives samples may be missed if bottles are pre-incubated, these organisms may fail to trip the threshold algorithm of the continuous monitoring blood culture machine. This may occur with Abiotrophia species (nutritionally variant streptococci), S. pneumoniae which have undergone a degree of autolysis, and fastidious organisms which are unable to grow on routine solid culture media. Organisms may include:

- Campylobacter species.
- Helicobacter species.
- Capnophilic organisms.
- Slow-growing anaerobes

Back to Index

Controlled document

Bordetella pertussis culture (Bacteriology)

Whooping cough is a highly contagious disease that is caused by the fastidious Gram-negative coccobacillus *Bordetella pertussis*. In some cases this syndrome may also be caused by *Mycoplasma pneumoniae*, and by viruses such as adenoviruses and enteroviruses. It is advisable to take two pernasal swabs: one for the culture of Bordetella species and the other for viral culture; however nasal swabs for PCR are preferred.

General Information

Back to Index

Collection container (including preservatives)	A pernasal swab (Dacron™ with flexible wire shaft)
Specimen Type	
Collection	A pernasal swab (Dacron™ with flexible wire shaft) is inserted through a nostril and advanced along the floor of the nose until it reaches the nasopharynx. It has been suggested that the swab be held against the posterior nasopharynx for up to 30 seconds or until the patient coughs. In practice, it is more likely that a patient will only be able to tolerate this for a few seconds
Specimen transport	Collect swabs into Amies transport medium with charcoal and transport in sealed plastic bags. If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.
Minimum volume of sample	Not applicable
Special precautions	

Controlled Document

Laboratory Information

Measurement units	Not applicable
Turnaround time	7 days

Clinical Information

Clinical decision points	Not applicable

Factors known to significantly affect the results	Pernasal swabs The only swab fibre recommended for diagnosis of whooping cough is Dacron™. *B. pertussis* has a stronger affinity for Dacron™ than for plain cotton wool or for treated cotton wool and its use improves recovery of the organism. It is also less inhibitory for PCR techniques.

Back to Index

Controlled document

Bordetella pertussis PCR (Molecular Microbiology)

General Information

Back to Index

Specimen Type and collection container	Nose and/or throat swab (virus transport medium) BAL/Sputum (sterile container) NPA (Sterile container)
Specimen transport	Ambient or refrigerated
Minimum volume of sample	Minimum volume 500µL
Special precautions	None known

Laboratory Information

Measurement units	Threshold cycle (CT)
Turn round time to Final result (calendar days)	2-3 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

Controlled document

Peritoneal Fluids (Bacteriology)

Continuous ambulatory peritoneal dialysis (CAPD) is used as an alternative to haemodialysis for the management of patients with end-stage renal failure.

General Information

Back to Index

Collection container (including preservatives)	Withdraw fluid aseptically from the injection port of the plastic dialysate bag with a sterile needle and syringe and transfer to a CE marked leak proof containers and place in sealed plastic bag.
Specimen Type	In a sealed plastic bag with a request form. Cell count = Sterile leakproof container in a sealed plastic bag containing 20mL of fluid for microscopy. Culture = Inoculated BacT/ALERT FA bottle (green top).
Collection	Use aseptic technique. Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags. Large volumes or whole dialysate bags may require special transportation according to local protocols. They should be transported in rigid, leakproof outer containers.
Specimen transport	Specimens should be transported and processed as soon as possible
Minimum volume of sample	Minimum volume of10mL. If blood culture bottles are used they should be inoculated aseptically with 5-10 mL of dialysate
Special precautions	Collect specimens before antimicrobial therapy where possible.

Laboratory Information

Measurement units	Cell count x 10^6 per litre
Turnaround time	48 hrs – 7 days for culture 30 – 60 mins for cell count. Telephone the laboratory in advance for urgent microscopy

Clinical Information

Factors known to significantly affect the results	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Back to Index

Controlled Document

Candida PCR (Molecular Microbiology)

General Information

Back to Index

Collection container (including preservatives)	EDTA blood collection tube
Specimen Type	EDTA Blood , Sputum, CSF, BAL, swabs
Specimen transport	Ambient or refrigerated Transport at ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Type and minimum volume of sample	5mL of EDTA blood. A minimum of 1mL of a bronchoalveolar lavage in a sterile screw-capped plastic container should arrive at the laboratory within 1 working day. The sample should not be frozen, but should be stored at 4^{O}C before dispatch, and kept cool during transport to the laboratory. Non invasive samples such as sputum and EDTA-blood may be used if BAL is unobtainable. A minimum of 0.5mL of whole CSF. Do not centrifuge. Use a small capacity screw capped container.
Special precautions	Samples should be stored at 4^{O}C and dispatched as soon as possible after being drawn. If longer storage is unavoidable, serum or plasma may be stored frozen, but should not be repeatedly frozen and thawed. In special circumstances, 0.5mL of serum or plasma can be tested, but for such small volumes avoid using a large container; use a small capacity container with a screw cap, such as an Eppendorff tube.

Laboratory Information

Measurement units	Threshold Cycle (CT)
Biological reference units	Not applicable
Turn round time to Final result (calendar days)	6 days if urgent please contact the laboratory

Controlled Document

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

Controlled document

Rapid /Routine Carbapenemase-Producing Enterobacteriaceae (CPE) Screen (Bacteriology, CMFT)

In response to the increasing numbers of CPE producing clinical isolates of Enterobacteriaceae the Infection Control Consultant and Microbiology department have produced a protocol for CPE screening and detection. The isolation of a clinical CPE isolate prompts the Infection Prevention & Control Team to screen all possible patient contacts to reduce the transmission of resistance enzymes within the Trust.

Rapid & routine CPE screens are processed on a molecular platform; culture is only performed on positive samples for epidemiological & monitoring purposes.

General Information

Back to Index

Collection container (including preservatives)	Swab: Double headed Red topped swab; available from Microbiology. Please note Charcoal swabs are unsuitable for this test and will not be processed.
Specimen Type	Screening of faeces/ rectal swabs
Specimen transport	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.
Type and minimum volume of sample	Not applicable
Special precautions	None

Laboratory Information

Measurement units	Threshold Cycle (CT)
Biological reference units	Not applicable
Turnaround time	Rapid CPE Screens : Designated wards agreed with IPC & Trafford Transfers: 2 - 4 hours from receipt into Microbiology Reception. The laboratory MUST be telephoned prior to the patient(s) being sampled. Samples should be received in the laboratory before 6pm (Mon-Fri) and before 4pm (Weekends/Bank Holidays) Routine CPE Screen: Designated wards agreed with IPC 24-48hrs

Controlled Document

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Faecal material must be visible on the cotton tip of the swab; failure to provide faecal material may produce a false negative screening result. Some faecal products may prove inhibitory to the PCR process; samples will be reported as inhibitory and a repeat will be requested.

Back to Index

Controlled document

Carbapenemase-Producing Enterobacteriaceae (CPE) Screen (Bacteriology, Wythenshawe)

In response to the increasing numbers of CPE producing clinical isolates of Enterobacteriaceaethe Infection Control Consultant and Microbiology department have produced a protocol for CPE screening and detection. The isolation of a clinical CPE isolate prompts the Infection Control Team to screen all possible patient contacts to reduce the transmission of resistance enzymes within the Trust.

General Information

Back to Index

Collection container (including preservatives)	Charcoal Swab (PLEASE NOTE THESE ARE NOT SUITABLE FOR THE MRI CPE SCREENING METHOD)
Specimen Type	Screening of faeces/ rectal swabs
Specimen transport	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.
Type and minimum volume of sample	Not applicable
Special precautions	None

Laboratory Information

Measurement units	MIC mg/L
Biological reference units	Not applicable
Turnaround time	Negative screen 24 hrs Postive results 72 hrs

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	The Modified Hodge Test (MHT) may produce false positive results within isolates that are high level ESBL producers. Occaccisonally isolates can excrete a substance that inhibits the growth of *E.coli* (such isolates will be referred for PCR confirmation as the MHT is invalid)

Back to Index

Controlled Document

Chlamydia trachomatis antibody (Serology)

General Information

Back to Index

Collection container (including preservatives)	6mL clotted blood tube
Specimen Type	Venous Blood
Collection	6mL clotted blood tube
Specimen transport	No special needs
Type and volume of sample	2mL
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Turnaround time	3 days

Clinical Information

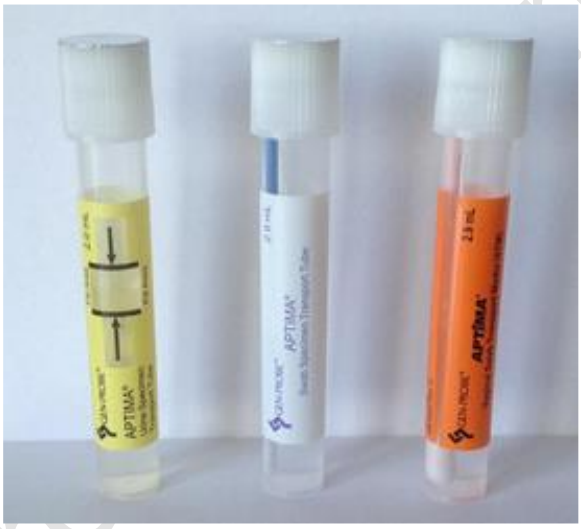
Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Chlamydia trachomatis, Neisseria gonorrhoea, Trichomonas vaginalis NAATs (Molecular Microbiology)

General Information Back to Index

Collection container (including preservatives)	Aptima Collection System
Specimen Type	Swab, urine
Collection	Specimens should be collected and handled following the recommended guidelines on the collection packs:  Yellow = Urine Collection White = Female endocervical and urethral. Male urethral. (White shafted swab is cleaning swab. Blue/or Pink shafted swab is for sample collection). Orange = Vaginal Swab Collection Please note: ○ Endo cervical /Urethral swabs: only use the white shaft swab for cleaning the cervix and then discard. Use blue shaft swab for taking the sample and then send to laboratory in Aptima tube. ○ Urethral swabs/urine: should not urinate for one hour prior to sampling

Control Document

	○ All swabs: Remove cap of collection tube; place swab in collection tube; break off swab at the mark THIS IS IMPORTANT!); replace cap and **tighten**; shaft of swab must not obstruct cap; do **not** perforate foil cover on cap. ○ Urines: remove cap of collection tube; transfer urine using disposable pipette provided; fill to the window on the side of the collection tube; replace cap and **tighten**.
Specimen transport	Transport at ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Type and volume of sample	2mL Urine
Special precautions	Patient consent must be obtained for both Chlamdyia and Gonococcal testing. Single tests cannot be accepted for either Chlamydia or Gonorrhoea. If consent for both cannot be obtained, please contact the laboratory for information on alternative laboratories that provide a single analyte service.

Laboratory Information

Measurement units	Relative Light Units (RLU)		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days All reactive tests are confirmed. For urgent tests please contact the laboratory

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Samples must be kept at ambient temperature False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

Controlled document

Clostridium difficile (Bacteriology)

C. difficile is a Gram positive, spore forming, strictly anaerobic rod, so named because of the difficulty in original culture and characterisation. Toxigenic strains produce large protein toxins A and B, both being major virulence factors. Most disease associated with *C. difficile* is intestinal though *C. difficile* may be isolated from blood or tissues.

General Information

Back to Index

Collection container (including preservatives)	Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags.
Specimen Type	Faeces
Collection	Specimen may be passed into a clean, dry, disposable bedpan or similar container and transferred into a CE marked leak proof container. The specimen is unsatisfactory if any residual soap, detergent or disinfectant remains in the pan.
Specimen transport	Compliance with current postal and transportation regulations is essential. Clinical samples should be collected into a sterile leak-proof container in a sealed plastic bag. Specimens should be transported and processed as soon as possible. If processing is delayed refrigeration is preferable to storage at room temperature.
Type and volume of sample	A liquid specimen of 1-2 mL is sufficient for culture and toxin detection. 1 gram (large pea-size) of unformed specimen
Special precautions	Formed stools are unsuitable for investigation for C. difficile.

Controlled document

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	24 hrs	**Turn round time to Final result (calendar days)**	48-72 hrs
95% of samples tested for *C. difficile* (GDH) are reported within 24hrs			

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	The detection of *C. difficile* is dependent on the number of organisms present in the sample, reliable results are dependent on correct specimen collection, handling, and storage.

Limitations

Interpretation of toxin results in children less than 2 years old should be treated with caution.

Clostridium difficile **Ribotyping Service**

The Manchester Laboratory has been identified as one of six Regional Laboratories to provide a *Clostridium difficile* ribotyping service as part of the *Clostridium difficile* Ribotyping Network (CDRN). Ribotyping will be provided for the North West Region and we will eventually have funding for up to 1,000 isolates per year.

Prior to sending your specimens to Manchester, please contact ALL of the named individuals listed below via email to ensure that specimens comply with the acceptance policy and that the CDRN forms are completed with all of the information needed. The current turn around time is 14 days.

Dr E Kaczmarski	Tel: 0161 276 5699	ed. Kaczmarski@phe.gov.uk
Dr A Dodgson	Tel: 0161 276 6010	andrew.dodgson@cmft.nhs.uk
Dr K Dodgson	Tel: 0161 276 5746	kirsty.dodgson@cmft.nhs.uk
Dr A Birtles	Tel: 01612765689	andrew.birtles@cmft.nhs.uk

Specimens will not be accepted unless all patient/sample data has been entered onto the CDRN web system and the sample is accompanied by a completed Specimen Request Form, generated from the CDRN web system.

Copies of the following documents are available using the links below:

(a) Guidance document with selection criteria
(b) Guidance document for access to the ribotyping service
(c) *Clostridium difficile* specimen request form (one form for each specimen)

Controlled document

(d) Guidance on storage of faecal specimens

https://nww.cdrn.nhs.uk

http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/ClostridiumDifficile

Back to Index

Controlled document

Contact lens (Bacteriology)

General Information

Back to Index

Collection container (including preservatives)	Contact lens case or Sterile container with saline
Specimen Type	Contacts lens
Specimen transport	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.
Minimum volume of sample	Not applicable

Laboratory Information

Turnaround time	24 – 72 hrs for culture Acanthameoba investigations 7 days Fungal Culture 5 days

Clinical Information

Factors known to significantly affect the results	The sample should be sent to the laboratory without delay

Back to Index

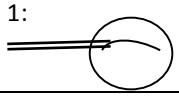
Controlled document

Corneal Scrape (Bacteriology)

Keratitis is an inflammation of the cornea, which is a serious condition requiring prompt and meticulous investigation, and may progress to perforation and blindness if treatment is unsuccessful. Predisposing factors include prior ocular disease, wearing contact lenses and use of topical corticosteroids. The condition may be caused by a wide range of bacteria, fungi and parasites.

Agar plates for bacterial, fungal or acanthamoebal culture, which are inoculated directly at the patient's side, are incubated immediately on receipt in the laboratory.

General Information Back to Index

Collection container (including preservatives)	Kits are available 24 hours a day from the stock fridge within Autolab reception MRI; should infection with fungi or Acanthamoeba be suspected additional kits are available from the Autolab reception. The Scrape kit contains Blood blobs, a chocolate plate, a glass slide within slide carrier and an instruction sheet The kit label indicates when the kit expires; kits should not be used after the expiry date and unused kits should be returned to microbiology.
Specimen Type	Aqueous and vitreous humour, corneal scrapings
Collection	Use aseptic technique. For each scrape of the eye a fresh needle must be used. **1. Preparing the Gram Stain:** Clear/wipe the infected area by removing as much cellular material as possible using a syringe needle and spread this evenly over the scribed area of the glass slide. 2. **Innoculating the Culture plates & Blood Blobs:** Scrape the infected area using a fresh needle and inoculate the surface of the agar with a large "C" streak. **(Figure 1)** (if the syringe needle is dug deep into the agar this will delay signs of bacterial growth) Figure 1: 

Controlled Document

	Innoculate each agar blob using a fresh needle each time. Slide & Choc agar & blobs MUST all be appropriately labelled. Acanthameoba plates should be labelled on the lid of the plate as labelling the agar side obstructs the visualisation of the plate down the microscope.
Specimen transport	Specimens should be transported and processed as soon as possible.
Minimum volume of sample	Corneal scrapings should be of sufficient quantity to make a visible deposit on a microscope slide and to inoculate culture plates. If insufficient specimen to make an impression smear and inoculate plates, cultures should be the priority.
Special precautions	Collect specimens before antimicrobial therapy where possible.

Laboratory Information

Turnaround time	24 – 72 hrs for culture 30 – 60 mins for microscopy if telephoned in advance

Clinical Information

Factors known to significantly affect the results	Where media and smears are inoculated at the patient's side they must be transported immediately to the laboratory for processing.

Back to Index

Controlled document

Corneal Scrape (Virology)

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof containerwith or without virus transport media
Specimen Type	Corneal Scrape for Microbial/Viral PCR
Specimen transport	Specimens should be transported and processed as soon as possible.
Minimum volume of sample	Not Applicable
Special precautions	Care with small sample size

Laboratory Information

Turnaround time	24 – 48 hrs

Clinical Information

Factors known to significantly affect the results	None Known

Back to Index

Controlled document

Cryptococcus Antigen (Virology)

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof container
Specimen Type	Clot or CSF
Specimen transport	No special requirements
Minimum volume of sample	150µl

Laboratory Information

Measurement Units	Positive or Negative, or titre
Turnaround time	24 hrs

Clinical Information

Factors known to significantly affect the results	None known

Back to Index

Controlled document

CSF (Bacteriology)

Meningitis is defined as inflammation of the meninges. This process may be acute or chronic and infective or non-infective. Many infective agents have been shown to cause meningitis, including viruses, bacteria, fungi and parasites.

Royal Manchester Childrens Hopsital is a specialist paediatric neurology centre; as such CSF obtained from ventricular shunts and shunts removed during revision may also be submitted to the laboratory for microscopy and culture.

General Information

Back to Index

Collection container (including preservatives)	Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags.
Specimen Type	Cerebrospinal Fluid
Collection	Use aseptic technique. Collect specimens into appropriate CE marked leak proof containers and place in sealed plastic bag.
Specimen transport	Specimens should be transported and processed as soon as possible.
Minimum volume of sample	For routine cell count & culture; ideally a minimum volume of 1 mL For Mycobacteria sp., culture (Tb), at least 6mL where possible; such investigations cannot be performed outside of normal hours CSF is normally collected sequentially into three or more separate containers which should be numbered consecutively.
Special precautions	**Always** contact the laboratory when sending a CSF sample. Send sample 3 (or the last sample if more than 3 taken) to Microbiology. Outside of normal hours contact the on-call

Control Document

	Biomedical Scientist through the main switchboard.

Laboratory Information

Measurement units	Cell count x10^6/L
Biological reference units	Leucocytes (WBC) Neonates 0 - 30 cells x 10^6/L 1-4yr old 0 - 20 cells x 10^6/L 5yr-puberty 0 - 10 cells x 10^6/L Adults 0 - 5 cells x 10^6/L When possible the WBC count will be differentiated into lymphocytes and polymorphs. Erythrocytes (RBC) Newborn 0 - 675 cells x 10^6/L Adults 0 - 10 cells x10^6 /L Protein (Performed by Biochemistry) Neonates ≤6d 0.7 g/L Others 0.2-0.4g/L (<1% of serum protein concentration) Glucose (Performed by Biochemistry) ≥60% of simultaneously determined plasma concentration (CSF: serum ratio ≥0.6)
Turnaround time	30 mins to 1 hour for microscopy 24 hrs-72 hrs for culture

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Cells disintegrate and a delay may produce a cell count that does not reflect the clinical situation of the patient.

Back to Index

Controlled document

Culture (Bacteriology)

General Information

Back to Index

Collection container (including preservatives)	Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags.
Specimen Type	Please state anatomical site on request form
Collection	Use aseptic technique.
Specimen transport	Specimens should be transported and processed as soon as possible.
Minimum volume of sample	Not applicable
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	24 hrs	**Turn round time to Final result (calendar days)**	48-72 hrs

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Collect specimens before antimicrobial therapy where possible. Specimens should be transported and processed as soon as possible

Back to Index

Controlled document

Cystic fibrosis (Bacteriology)

Cystic fibrosis (CF) is caused by a defect in the CF transmembrane conductance regulator gene that affects the transport of ions and water across the epithelium. This leads to progressive pulmonary disease associated with pulmonary infections, which are the major cause of morbidity and mortality in CF patients. The major pathogens are *S. aureus*, *H. influenzae* (usually non-encapsulated in CF patients), *S. pneumoniae, Burkholderia* and Pseudomonads, particularly mucoid *P. aeruginosa* strains. Strains of *P. aeruginosa* with differing antibiotic susceptibilities may be isolated from a single sample.

General Information

Back to Index

Collection container (including preservatives)	Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags. Sputum/Pleural Fluids/BALs Cough Swabs (Paediatric CF)
Specimen Type	Respiratory specimens; Sputum and Cough Swabs (Paediatric use only)
Collection	Use aseptic technique.
Specimen transport	Specimens should be transported and processed as soon as possible. Paediatric postal samples should be submitted using the kit provided by the Microbiology Laboratory.
Minimum volume of sample	5mL
Special precautions	Some complex identification can take several weeks to confirm identity If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable
Biological reference units	Not applicable

Controlled Document

Turnaround time	Negative results available at 48 hours and positives generally within 5 days.

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Specimens should be transported and processed as soon as possible. The recovery rate of *Haemophilus* sp., is reduced the longer the time taken to transport the specimen.

Back to Index

Controlled document

Cytomegalovirus (CMV) IgG avidity

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	No special needs
Minimum volume of sample	2ml Venous Blood
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turn round time for Provisional result (calendar days)	5 days	**Turn round time to Final result (calendar days)**	7 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Cytomegalovirus (CMV) IgG

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	No special needs
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	AU/mL		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days
For urgent tests please contact the laboratory for 4 hour turnaround			

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Cytomegalovirus (CMV) IgM

Specific CMV IgM assay is useful in distinguishing individuals who have acquired the infectionrecently from those who have not. Further information may be gained from IgG avidity testing where IgM is.

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	No special needs
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Cytomegalovirus viral load (Molecular Microbiology)

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof container or EDTA blood tube
Specimen Type	Urine EDTA blood
Specimen transport	Ambient or refrigerated
Minimum volume of sample	Minimum volume 500µl
Special precautions	None known

Laboratory Information

Measurement units	Copies/mL		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days
Turnaround time The results of all tests will be available within 3 working days after receipt of the specimen in the laboratory, and usually within 24 hours.			

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay

Controlled document

	sampling variation will result in lower reproducibility.

Back to Index

Controlled document

CMV (Cytomegalovirus) antiviral Resistance markers

CMV viral load positive bloods. Complete CMV antiviral resistance genotypic screening including

UL97: Nucleotide sequencing of the CMV phosphotransferase gene for the identification of mutations encoding resistance to ganciclovir.

UL54: Nucleotide sequencing of the DNA polymerase gene for the identification of mutations encoding resistance to ganciclovir, foscarnet and cidofovir.

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof container EDTA blood tube
Specimen Type	EDTA blood
Specimen transport	Ambient or refrigerated For PCR for confirmation of active CMV infection and monitoring of antiviral therapy please send 4mL of EDTA blood. This should be stored at 4^{O}C and dispatched as soon as possible after being drawn. If longer storage is unavoidable, serum or plasma may be stored frozen, but should not be repeatedly frozen and thawed. In special circumstances, 0.5mL of serum or plasma can be tested, but for such small volumes avoid using a large container but use a small capacity container with a screw-cap, such as an Eppendorff tube.
Minimum volume of sample	3.0 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	mL Wild type / resistant mutation		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	5 days	**Turn round time to Final result (calendar days)**	7 days

Clinical Information

Controlled document

Clinical decision points	Not applicable
Factors known to significantly affect the results	False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

Controlled document

Diphtheria IgG Antibody Determination (Vaccine Evaluation Unit)

Diphtheria IgG antibody determination by flow analysis assay bead assay.

General Information

Back to Index

Collection container (including preservatives)	Clotted blood sample tube (no preservative)
Specimen Type	Clotted Blood/serum,paired sera
Specimen transport	Specimens should be transported and processed as soon as possible.
Type and volume of sample	Clotted Blood/serum; **Minimum volume 0.1mL**
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	IU/mL
Biological reference units	Not applicable
Turnaround time	28 Working Days

Clinical Information

Clinical decision points	IgG of ≥ 0.1IU/mL considered protective
Factors known to significantly affect the results	none known

Back to Index

Controlled document

Ear (Bacteriology)

General Information

Back to Index

Collection container (including preservatives)	Collect swabs into Amies transport medium with charcoal and transport in sealed plastic bags. Numbers and frequency of specimen collection are dependent on clinical condition of patient. Fine wire swabs can be used for inner ear swabs; these swabs do not contain any charcoal media as such they should be transported promptly to the laboratory to prevent dessication.
Specimen Type	Ear Swab
Collection	For investigation of fungal infection, scrapings of material from the ear canal are preferred although swabs can also be used.
Specimen transport (e.g at room temperature, or within 4 hrs)	Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags. Collect swabs into Amies transport medium with charcoal and transport in sealed plastic bags. For investigation of fungal infection, use an appropriate method to transport scrapings of material from the ear canal.
Minimum volume of sample	Not applicable
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result	24 hrs	**Turn round time to Final result (calendar**	48 -72 hrs

Controlled Document

(calendar days)		**days)**	

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Collect specimens before antimicrobial therapy where possible

Back to Index

Controlled document

Enteric Virus Panel (Virology)

Multiplex PCR including:

1) Adenovirus 40/41
2) Astrovirus
3) Rotavirus
4) Sapovirus
5) Norovirus G1 and G2

Rotavirus, sapovirus, astrovirus and adenovirus are major causes of acute gastroenteritis. The majority of infections occur in infants and young children. Infections in the elderly are also reported for these agents, and chronic infections can result in immunocompromised patients.

Norovirus is the cause of epidemic gastroenteritis

General Information

Back to Index

Specimen Type and container	Faeces collected in a CE marked leak proof container
Specimen transport	Compliance with current postal and transportation regulations is essential. Clinical samples should be collected into a sterile leak-proof container in a sealed plastic bag. Appropriate hazard labelling according to local policy should be applied. Specimens should be transported as soon as possible.
Minimum volume of sample	Minimum volume 500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at room temperature.

Control Document

Laboratory Information

Measurement units	Threshold cycle (CT)		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

In order to provide the most clinically beneficial, operationally efficient and cost effective service the laboratory employs a number of multiplex assays and testing algorithms, which are based on UK Standards for Microbiology Investigations; it is normal practice to use these even when not all tests within the multiplex or algorithm are requested.

It is our policy to report all results along with the requested result to provide as much information as possible to aid diagnosis

Controlled document

Enterovirus and Parechovirus PCR (Molecular Microbiology)

Encephalitis, meningitis

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood, CSF, Swab
Specimen transport	Ambient or refrigerated
Minimum volume of sample	Minimum 500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Threshold cycle (CT)		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	None known

Back to Index

Controlled document

Epstein Barr Virus (EBV) IgG - screening

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	U/mL		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Epstein Barr Virus (EBV) IgM - screening

General Information

Back to Index

Collection container (including preservatives)	6mL clotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	U/mL		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Epstein Barr Virus (EBNA) - confirmation

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	U/mL
Turnaround time	3 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Epstein Barr virus viral load (Molecular Microbiology)

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood
Specimen transport	Ambient or refrigerated
Minimum volume of sample	500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Copies/mL		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

Controlled document

Eye and Canalicular Pus (Bacteriology)

General Information

Back to Index

Collection container (including preservatives)	Collect specimens other than swabs into appropriate CE marked leak proof containers and place in sealed plastic bags Any available pus should be sampled as well as the lesion of interest. Swabs for bacterial and fungal culture should be placed in Amies transport medium with charcoal.
Specimen Type	Pus Eye Swab Small syringes (0.25ml) containing pus will be accepted, but the needle MUST be removed before submission.
Specimen transport (e.g at room temperature, or within 4 hrs)	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.
Minimum volume of sample	Not applicable

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	24 hrs	**Turn round time to Final result (calendar days)**	48-72hrs

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Collect specimens before antimicrobial therapy where possible, and preferably before application of local anaesthetic.

Uncontrolled document

Limitations

Superficial swabs, although not ideal, may be all that is available. Deep-seated samples if available should be sought.

Back to Index

Controlled document

Faeces Culture (Bacteriology)

All diagnostic faecal samples, except single organism screens, are tested for the following organisms; *Campylobacter* sp., *Salmonella* sp., E.coli (VTEC) including 0157 & *Shigella* sp.,. Faecal samples submitted from patients that have a foreign travel history will also be examined for Vibrio sp., including *Vibrio cholera.*
Foodborne outbreak samples submitted through the local environmental health team may have additional culture performed for *Staph aureus*, Bacillus sp., and Clostridia sp.
Additional screening for Yeast sp., and Vancomycin Resistant Enterococci (VRE) is performed on selected Immunocompromised patient groups under the guidance of the IPC Team.

General Information

Back to Index

Collection container (including preservatives)	Collect specimens in appropriate CE marked leak proof containers
Specimen Type	Faeces
Collection	Specimen may be passed into a clean, dry, disposable bedpan or similar container and transferred into an appropriate CE marked leak proof containers and place in sealed plastic bags.
Specimen transport	If processing is delayed, refrigeration is preferable to storage at ambient temperature
Minimum volume of sample	A liquid specimen of 1-2 mL is sufficient. 1 gram (large pea-size) of solid specimen
Special precautions	The specimen is unsatisfactory if any residual soap, detergent or disinfectant remains in the pan.

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	24 hrs	**Turn round time to Final result (calendar days)**	48-72hrs

Clinical Information

Controlled document

Clinical decision points	Not applicable

Back to Index

Controlled document

Fluids from Normally Sterile Sites

The detection of organisms in fluids that are normally sterile indicates significant infection, which can be life-threatening. Specimens may be taken primarily for culture or this may be incidental to the prime reason for obtaining the specimen.
Blood cultures may be positive with the same infecting organism, and occasionally may be positive when culture of the fluid fails to reveal the organism.
Fluids will be sterile in the absence of infection, as will "sympathetic effusions", and those of immunological or traumatic origin and those due to metabolic disease or heart failure.
Signs of infection may be difficult to detect clinically in patients whose joints are already inflamed due to rheumatological conditions. This is important because these patients are at increased risk of joint sepsis.

General Information

Back to Index

Collection container (including preservatives)	Use aseptic technique. Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags.
Specimen Type	Universal container: Amniotic fluid, bursa fluid, pericardial fluid, synovial (joint) fluid, peritoneal fluid (ascites), pleural fluid. Capped Syringes: Vitreous aspirates & other intra ocular fluids should be injected into a Blood Culture bottle set with a small syringe of fluid submitted for a Gram stain. The needle MUST be removed before submission for the laboratory.
Collection	Collect specimens before antimicrobial therapy where possible.
Specimen transport	Specimens should be transported and processed as soon as possible
Minimum volume of sample	Ideally, a minimum volume of 1 mL. Large volume - specimens such as peritoneal fluid and ascitic fluid may contain very low numbers of organisms which are usually received in adequate quantities and require concentration to increase the likelihood of successful culture. Small volume - fluids such as synovial fluids may be received in inadequate volumes, which may impede the recovery of organisms.

Controlled Document

Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	X10 ^{6}/L for cell count		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	30 -60 mins for microscopy, when requested as Urgent. 24 hrs for culture	**Turn round time to Final result (calendar days)**	48-72hrs

Clinical Information

Clinical decision points	Not applicable

Back to Index

Controlled document

Genital Specimens for Culture (Bacteriology)

General Information Back to Index

Collection container (including preservatives)	CE marked leak proof container
Specimen Type	High vaginal swab (HVS), vaginal discharge, vulval swab, labial swab, cervical swab, endocervical swab, penile swab, urethral swab, genital ulcer swab, semen, screening swabs for *N. gonorrhoeae*, aspirates from bartholin's gland, fallopian tube, tubo-ovarian abscess, pouch of Douglas fluid, intra-uterine contraceptive device (IUCD), products of conception. High Vaginal swabs (HVS) are not suitable for the isolation of *N. gonorrhoeae*, Endocervical swabs should be submitted. Aspirates Genital Swab Urethral Swab
Collection	Use aseptic technique. Collect specimens in appropriate CE marked leak proof containers and transport in sealed plastic bags. Collect swabs into appropriate transport medium and transport in sealed plastic bags. **Genital tract swabs** Cervical and high vaginal swabs should be taken with the aid of a speculum. It is important to avoid vulval contamination of the swab. For Trichomonas, the posterior fornix, including any obvious candidal plaques should be swabbed. If pelvic infection, including gonorrhoea, is suspected, the cervical os should be swabbed Separate samples should be collected into appropriate transport media for detection of viruses or C. trachomatis. **High vaginal swabs** After the introduction of the speculum, the swab should be rolled firmly over the surface of the vaginal vault. The swab should then be placed in Amies transport medium with charcoal. **Cervical swabs** After introduction of the speculum to the vagina, the swab should be rotated inside the endocervix. The swab should then be

Controlled Document

	placed in Amies transport medium with charcoal. **Urethral swabs** Contamination with micro-organisms from the vulva or the foreskin should be avoided. Thin swabs are available for collection of specimens. The patient should not have passed urine for at least one hour. For males, if a discharge is not apparent, attempts should be made to "milk" exudate from the penis. The swab is gently passed through the urethral meatus and rotated. Place the swab in Amies transport medium with charcoal. **Intrauterine contraceptive devices (IUCDs)** The entire device should be sent. **Rectal swabs** Rectal swabs are taken via a proctoscope. **Throat swabs** Throat swabs should be taken from the tonsillar area and/or posterior pharynx avoiding the tongue and uvula. **Fluids and pus** These are taken from the fallopian tubes, tubo-ovarian and Bartholin's abscesses, etc… during surgery
Specimen transport	Specimens should be transported and processed as soon as possible.
Minimum volume of sample	Fluids and pus – preferably a minimum volume of 1mL.
Special precautions	Endocervical swabs for gonorrhoea investigation should not be refrigerated

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	30 -60 mins for microscopy 24 hrs for culture	**Turn round time to Final result (calendar days)**	48-72hrs

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	HVS swabs for gonorrhoea investigation should not be refrigerated as this significantly reduces the recovery rate

Back to Index

Controlled document

Haemophilus influenze PCR (Molecular Microbiology)

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA, whole blood, serum, CSF
Collection	Compliance with current postal and transportation regulations is essential Clinical samples should be collected into a sterile leak-proof container in a sealed plastic bag. Appropriate hazard labelling according to local policy should be applied.
Specimen transport	Ambient or refrigerated
Minimum volume of sample	Minimum volume 500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Threshold Cycle (CT)		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Limitations

Back to Index

Controlled document

Haemophilus influenzae type b IgG Antibody Determination (Vaccine Evaluation Unit)

Haemophilus influenzae type b IgG antibody determination by flow analysis assay bead assay.

General Information

Back to Index

Collection container (including preservatives)	Clotted blood sample tube (no preservative)
Specimen Type	Clotted Blood/serum
Specimen transport	Compliance with current postal and transportation regulations is essential. Clinical samples should be collected into a leak-proof container in a sealed plastic bag. Specimens should be transported and processed as soon as possible.
Type and volume of sample	Clotted Blood/serum; **Minimum volume 0.1mL**
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	µg/mL
Biological reference units	Not applicable
Turnaround time	28 Working Days

Clinical Information

Clinical decision points	IgG of ≥ 0.15 µg/mL for short term protection: IgG of ≥ 1.00 µg/mL for long term protection
Factors known to significantly affect the results	None known

Back to Index

Controlled document

Hepatitis B virus (HBV) e antigen (HBeAg) and e antibody (Anti-HBe)

General Information

Back to Index

Collection container (including preservatives)	6mL clotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Type and volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

HBV Genotyping and Resistance Markers (Molecular Microbiology)

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood
Collection	
Specimen transport	Ambient or refrigerated
Minimum volume of sample	3 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable
Turnaround time	The results of all tests will be available within 5 working days after receipt of the specimen in the laboratory, and may be available sooner by prior arrangement

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

Controlled document

HCV Genotyping (Molecular Microbiology)

HCV genotyping would only be performed on an HCV viral load positive sample

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood
Specimen transport	Ambient or refrigerated
Minimum volume of sample	3.0 mL
Special precautions	Haemolysed specimens can be inhibitory; where this is unavoidable, such as with post-mortem samples, the laboratory should be contacted (0161-276-8843). Plasma should be stored at 4^{O}C and dispatched as soon as possible. An additional 3mL fresh whole blood in **EDTA** should be sent if the initial HCV PCR is positive.

Laboratory Information

Measurement units	Results presented as genotype
Turnaround time	The results of all tests will be available within 5 working days after receipt of the specimen in the laboratory, and may be available sooner by prior arrangement

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

Controlled document

Helicobacter pylori (Bacteriology)

Infection with *H. pylori* is associated with peptic ulceration. There is evidence that it may play an important role in non-ulcer dyspepsia.

General Information

Back to Index

Collection container (including preservatives)	Collect specimens in appropriate CE marked leak proof containers
Specimen Type	Faeces
Collection	Specimen may be passed into a clean, dry, disposable bedpan or similar container and transferred into an appropriate CE marked leak proof containers and place in sealed plastic bags.
Specimen transport	If processing is delayed, refrigeration is preferable to storage at ambient temperature
Minimum volume of sample	A liquid specimen of 1-2 mL is sufficient. 1 gram of solid specimen
Special precautions	The specimen is unsatisfactory if any residual soap, detergent or disinfectant remains in the pan.

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	48 hrs	**Turn round time to Final result (calendar days)**	48 -72 hrs

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	None known

Back to Index

Controlled document

Gastric Biopsies for Helicobacter pylori (Bacteriology)

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof containerin a sealed plastic bag. The biopsy should be placed in a small, sterile container such as a bijou bottle, containing a small amount (approximately 100µL) of sterile isotonic saline to preserve moisture.
Specimen Type	Gastric biopsies – This is the specimen of choice for the culture of *H. pylori*
Collection	Before antimicrobial therapy where possible Gastric biopsy specimens are usually taken from the gastric antrum at endoscopy, and sometimes from the body depending on location of inflammation
Specimen transport	Specimens should be transported and processed as soon as possible (preferably within 6h)
Minimum volume of sample	At the discretion of the endoscopist as it depends on the individual patient
Special precautions	It is important to maintain a moist atmosphere during transport.

Laboratory Information

Measurement units	Not applicable
Biological reference units	Not applicable
Turnaround time	Culture result within 10 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Sensitivity of the microscopy may be reduced if the biopsy is submerged in the saline, because mucus globules form and production of a satisfactory smear becomes difficult.

Back to Index

Controlled document

Hepatitis A virus (HAV) IgG (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis Assay interference and generation of anomalous results can occur when a patients' sample contains: Heterophile antibodies Animal serum products (from routine exposure to animals) Human mouse monoclonal antibodies (patients who receive Preparations of mouse monoclonal antibodies for diagnosis or therapy).

Back to Index

Controlled document

Hepatitis A virus (HAV) IgM (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis Assay interference and generation of anomalous results can occur when a patients' sample contains: Heterophile antibodies Animal serum products (from routine exposure to animals) Human mouse monoclonal antibodies (patients who receive Preparations of mouse monoclonal antibodies for diagnosis or therapy).

Back to Index

Controlled document

Hepatitis B virus (HBV) surface antigen (HBsAg)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis, mutation

Back to Index

Controlled document

Hepatitis B virus (HBV) confirmation (Virology)

This test consists of HBsAg, anti-HBcore and anti-HBsand may also include tests for Hepatitis B e antigen, Hepatitis B e antibody and Hepatitis B core IgM

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable

Laboratory Information

Turnaround time	3 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Hepatitis B virus (HBV) core antibody (Dried Blood Spot) (Virology)

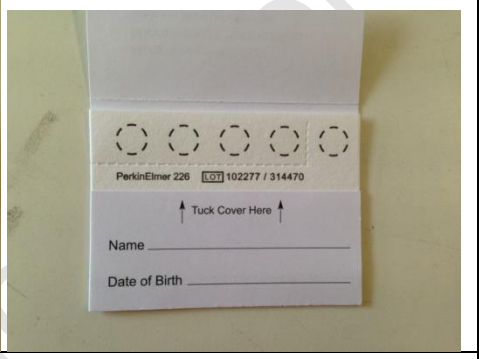
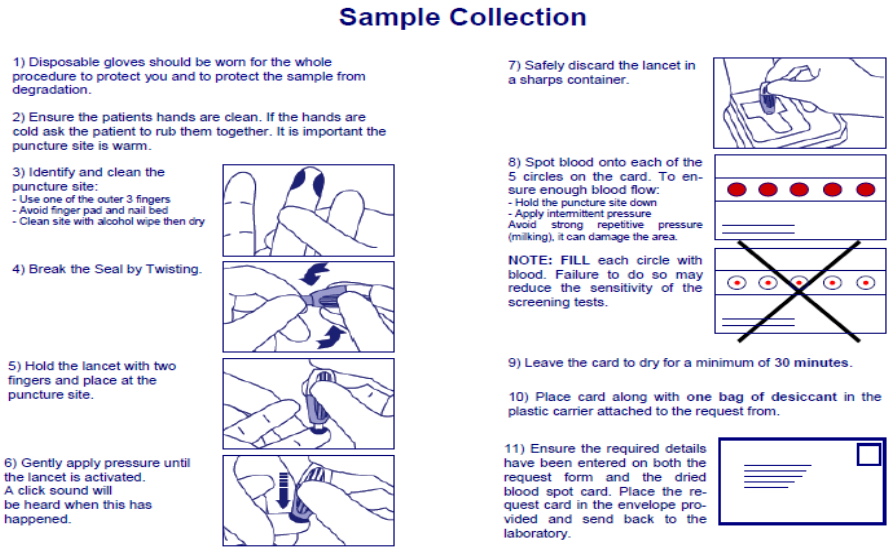
This service is designed for those patients on whom it is difficult to obtain venous blood, especially for intra venous drug users.

Contact the laboratory for supply of postal packs containing all necessary items for using this service.

Paediatric/infant packs are available on request

General Information

Back to Index

Collection container (including preservatives)	Envelope with dessicant 
Specimen Type	Dried blood spot card
Collection	 Sample Collection 1) Disposable gloves should be worn for the whole procedure to protect you and to protect the sample from degradation. 2) Ensure the patients hands are clean. If the hands are cold ask the patient to rub them together. It is important the puncture site is warm. 3) Identify and clean the puncture site: - Use one of the outer 3 fingers - Avoid finger pad and nail bed - Clean site with alcohol wipe then dry 4) Break the Seal by Twisting. 5) Hold the lancet with two fingers and place at the puncture site. 6) Gently apply pressure until the lancet is activated. A click sound will be heard when this has happened. 7) Safely discard the lancet in a sharps container. 8) Spot blood onto each of the 5 circles on the card. To ensure enough blood flow: - Hold the puncture site down - Apply intermittent pressure Avoid strong repetitive pressure (milking), it can damage the area. NOTE: FILL each circle with blood. Failure to do so may reduce the sensitivity of the screening tests. 9) Leave the card to dry for a minimum of 30 minutes. 10) Place card along with one bag of desiccant in the plastic carrier attached to the request from. 11) Ensure the required details have been entered on both the request form and the dried blood spot card. Place the request card in the envelope provided and send back to the laboratory.
Specimen transport	No special needs
Minimum	7mm diameter blood spot

volume of sample	
Special precautions	Ensure blood spot has dried and submit with dessicant pouch enclosed

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Spots too small, not all spots filled with blood

Back to Index

Controlled document

Hepatitis B virus (HBV) core IgM (Anti HBc IgM) (Virology)

General Information

Backto Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	No special needs
Minimum volume of sample	2mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	S/CO		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Hepatitis B virus (HBV) core antibodies (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Hepatitis B virus (HBV) surface antigen (HBsAg) (Dried Blood Spot) (Virology)

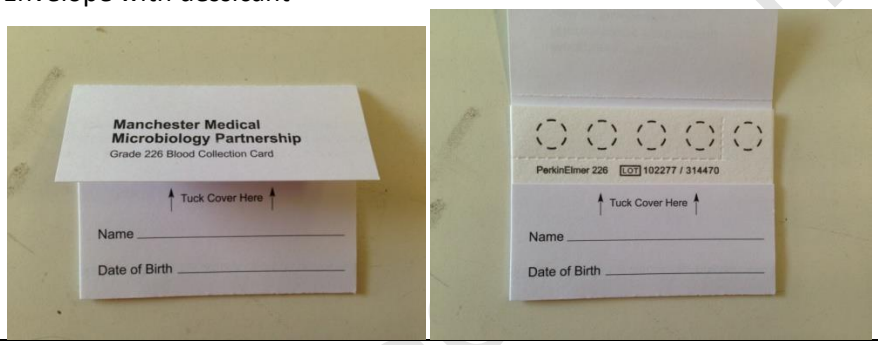
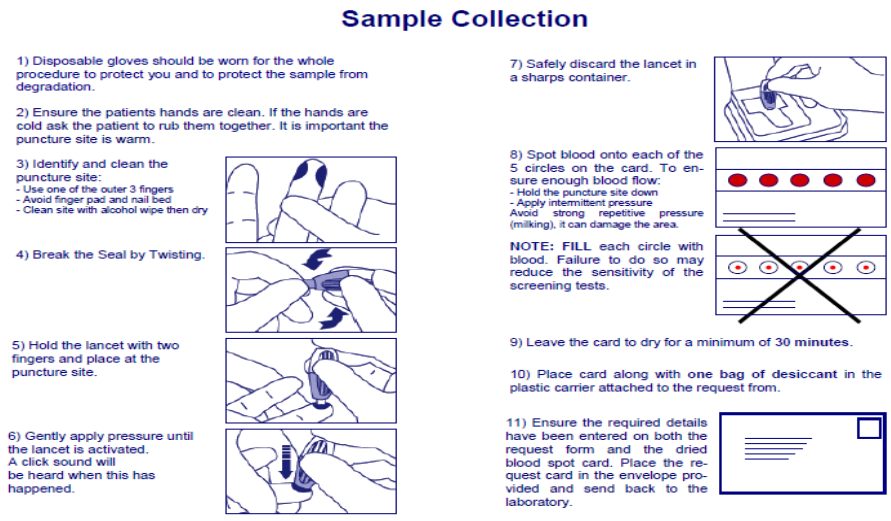
This service is designed for those patients on whom it is difficult to obtain venous blood, especially for intra venous drug users.

Contact the laboratory for supply of postal packs containing all necessary items for using this service.

Paediatric/infant packs are available on request

General Information

Back to Index

Collection container (including preservatives)	Envelope with dessicant  Manchester Medical Microbiology Partnership Grade 226 Blood Collection Card Tuck Cover Here Name Date of Birth PerkinElmer 226 LOT 102277 / 314470 Tuck Cover Here Name Date of Birth
Specimen Type	Dried blood spot card
Collection	 Sample Collection 1) Disposable gloves should be worn for the whole procedure to protect you and to protect the sample from degradation. 2) Ensure the patients hands are clean. If the hands are cold ask the patient to rub them together. It is important the puncture site is warm. 3) Identify and clean the puncture site: - Use one of the outer 3 fingers - Avoid finger pad and nail bed - Clean site with alcohol wipe then dry 4) Break the Seal by Twisting. 5) Hold the lancet with two fingers and place at the puncture site. 6) Gently apply pressure until the lancet is activated. A click sound will be heard when this has happened. 7) Safely discard the lancet in a sharps container. 8) Spot blood onto each of the 5 circles on the card. To ensure enough blood flow: - Hold the puncture site down - Apply intermittent pressure Avoid strong repetitive pressure (milking), it can damage the area. NOTE: FILL each circle with blood. Failure to do so may reduce the sensitivity of the screening tests. 9) Leave the card to dry for a minimum of 30 minutes. 10) Place card along with one bag of desiccant in the plastic carrier attached to the request from. 11) Ensure the required details have been entered on both the request form and the dried blood spot card. Place the request card in the envelope provided and send back to the laboratory.
Specimen transport	No special needs
Minimum volume of sample	7mm diameter blood spot

Special precautions	Ensure blood spot has dried and submit with dessicant pouch enclosed

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Spots too small, not all spots filled with blood

Back to Index

Controlled document

Hepatitis B virus (HBV) surface antibody (Anti-HBs) (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	mIU/mL		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Hepatitis B virus viral load (Molecular Microbiology)

Indications for testing:

- Detection of viraemia in patients with chronic hepatitis B infection.
- Investigation of possible transmission of hepatitis B e.g. following exposure to blood or body fluids of an infected patient.
- Monitoring effectiveness of anti-viral therapy in patients with chronic hepatitis B infection.
- Measurement of hepatitis B viral load in e antigen negative hepatitis B infected health care workers who perform exposure prone procedures (Health Service Circular 2000/020).

General Information Back to Index

Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood
Collection	Freshly drawn blood in EDTA
Specimen transport	Ambient or refrigerated **Quantitative PCR** • 5mL of freshly drawn whole blood in **EDTA** or 2mL of plasma that has been separated within 6 hours of being drawn, and which has not been frozen and thawed. Plasma should be stored at $4^{O}C$ and dispatched as soon as possible. Haemolysed specimens can be inhibitory; where this is unavoidable, such as with post-mortem samples, the laboratory should be contacted (0161-276-8843). The dynamic range for this assay is 200-10^{9}/mL **Hepatitis B infected health care workers: Qualitative PCR** • Two samples of a minimum of 10mL of blood in **EDTA** should be taken from the health care worker a week apart, and should be sent separately and as soon as possible after sampling to the laboratory. The laboratory request form should be photocopied locally and both copies sent with the request.
Minimum volume of sample	3.0 mL

Controlled document

Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	IU/mL		
Dynamic range	The dynamic range for this assay is 10-10^9copies/mL		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

The results of "in-house" tests will be available within 5 working days after receipt of the specimen in the laboratory, and may be available sooner by prior agreement.Specimens sent from hepatitis B infected health care workers are sent to the Regional Virus Laboratory, Gartnavel General Hospital, Glasgow, where they are divided and an aliquot sent to the Birmingham PHE Laboratory. Both specimens from the health care worker are tested in parallel in the same test run in both laboratories, and the final result is the mean of all results on both samples. Test runs are done in batches and for this reason turnaround is at least 30 days from receipt of the second specimen in the laboratory.

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	None known

Back to Index

Controlled document

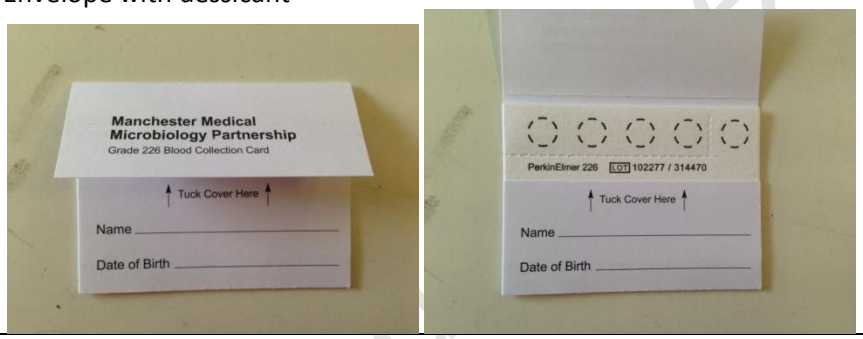
Hepatitis C antibody (HCV) screen and confirmation (Dried Blood Spot) (Virology)

This service is designed for those patients on whom it is difficult to obtain venous blood, especially for intra venous drug users.

Contact the laboratory for supply of postal packs containing all necessary items for using this service.

Paediatric/infant packs are available on request

General Information Back to Index

Collection container (including preservatives)	Envelope with dessicant 
Specimen Type	Dried blood spot card

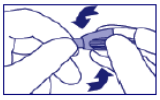
Sample Collection

1) Disposable gloves should be worn for the whole procedure to protect you and to protect the sample from degradation.

2) Ensure the patients hands are clean. If the hands are cold ask the patient to rub them together. It is important the puncture site is warm.

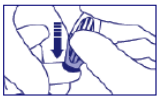
3) Identify and clean the puncture site:
- Use one of the outer 3 fingers
- Avoid finger pad and nail bed
- Clean site with alcohol wipe then dry

4) Break the Seal by Twisting.

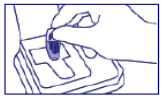


5) Hold the lancet with two fingers and place at the puncture site.

6) Gently apply pressure until the lancet is activated. A click sound will be heard when this has happened.

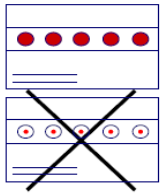


7) Safely discard the lancet in a sharps container.



8) Spot blood onto each of the 5 circles on the card. To ensure enough blood flow:
- Hold the puncture site down
- Apply intermittent pressure

Avoid strong repetitive pressure (milking), it can damage the area.



NOTE: FILL each circle with blood. Failure to do so may reduce the sensitivity of the screening tests.

9) Leave the card to dry for a minimum of **30 minutes**.

10) Place card along with **one bag of desiccant** in the plastic carrier attached to the request from.

11) Ensure the required details have been entered on both the request form and the dried blood spot card. Place the request card in the envelope provided and send back to the laboratory.

Specimen transport	No special needs
Minimum volume of sample	7mm Dried blood spot

Special precautions	Ensure blood spot has dried and submit with dessicant pouch enclosed

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	4 days	**Turn round time to Final result (calendar days)**	6 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Spots too small, not all spots filled with blood

Back to Index

Controlled document

Hepatitis C antibody (HCV) screen and confirmation (Virology)

General Information

Backto Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mLVenous Blood
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	Not applicable
Turnaround time	Rountine 2-3 days. Please contact the laboratory if urgent for 4 hour turnaround (screen only)

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Hepatitis C viral load (Molecular Microbiology)

General Information

Back to Index

Collection container (including preservatives)	EDTA Blood tube
Specimen Type	EDTA Blood/Plasma
Collection	Freshly drawn whole blood in EDTA
Specimen transport	Clinical samples should be collected into a sterile leak-proof container in a sealed plastic bag. Appropriate hazard labelling according to local policy should be applied. Specimens should be transported and processed as soon as possible, complying with postal and transport regulations. If processing is delayed, refrigeration is preferable to storage at room temperature.
Minimum volume of sample	3.0 mL
Special precautions	Haemolysed specimens can be inhibitory; where this is unavoidable, such as with post-mortem samples, the laboratory should be contacted (0161-276-8843). Plasma should be stored at $4^{O}C$ and dispatched as soon as possible. An additional 3mL fresh whole blood in **EDTA** should be sent if the initial HCV PCR is positive.

Laboratory Information

Measurement units	IU/mL
Dynamic range	The dynamic range for this assay is 12-10^{8} copies/mL
Turnaround time	The results of all tests will be available within 5 working days after receipt of the specimen in the laboratory, and may be available within 24 hrs by prior arrangement with the laboratory.

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysed specimens can be inhibitory; where this is unavoidable, such as with post-mortem samples, the laboratory should be contacted (0161-276-8843).

Back to Index

Controlled Document

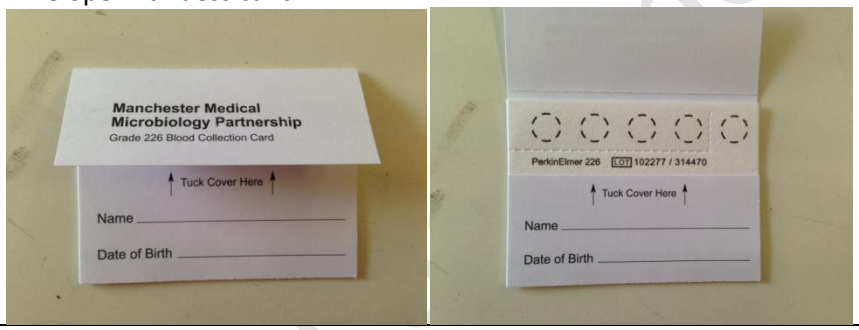
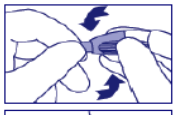
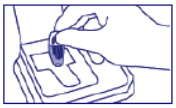
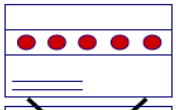
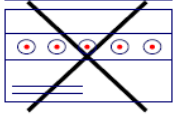
Hepatitis C qualitative PCR and genotype if HCV antibody is reactive (Dried Blood Spot)

This service is designed for those patients on whom it is difficult to obtain venous blood, especially for intra venous drug users.

Contact the laboratory for supply of postal packs containing all necessary items for using this service.

Paediatric/infant packs are available on request

General Information Back to Index

Collection container (including preservatives)	Envelope with dessicant 
Specimen Type	Dried blood spot card
Collection	**Sample Collection** 1) Disposable gloves should be worn for the whole procedure to protect you and to protect the sample from degradation. 2) Ensure the patients hands are clean. If the hands are cold ask the patient to rub them together. It is important the puncture site is warm. 3) Identify and clean the puncture site: - Use one of the outer 3 fingers - Avoid finger pad and nail bed - Clean site with alcohol wipe then dry 4) Break the Seal by Twisting.  5) Hold the lancet with two fingers and place at the puncture site. 6) Gently apply pressure until the lancet is activated. A click sound will be heard when this has happened. 7) Safely discard the lancet in a sharps container.  8) Spot blood onto each of the 5 circles on the card. To ensure enough blood flow: - Hold the puncture site down - Apply intermittent pressure Avoid strong repetitive pressure (milking), it can damage the area.  **NOTE: FILL** each circle with blood. Failure to do so may reduce the sensitivity of the screening tests.  9) Leave the card to dry for a minimum of 30 **minutes**. 10) Place card along with **one bag of desiccant** in the plastic carrier attached to the request from. 11) Ensure the required details have been entered on both the request form and the dried blood spot card. Place the request card in the envelope provided and send back to the laboratory.
Specimen	No special needs

transport	
Minimum volume of sample	7mm Dried blood spot card
Special precautions	Ensure blood spot has dried and submit with dessicant pouch enclosed

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	5 days	**Turn round time to Final result (calendar days)**	7 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Spots too small, not all spots filled with blood

Back to Index

Controlled document

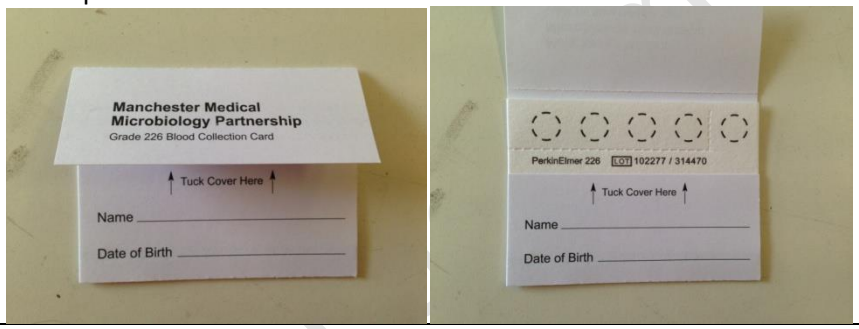
Dried blood Spot Hepatitis C RNA Screening (Virology)

This service is designed for those patients on whom it is difficult to obtain venous blood, especially for intra venous drug users.

Contact the laboratory for supply of postal packs containing all necessary items for using this service.

Paediatric/infant packs are available on request

General Information Back to Index

Collection container (including preservatives)	Envelope with dessicant 
Specimen Type	Dried blood spot card

Collection

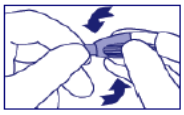
Sample Collection

1) Disposable gloves should be worn for the whole procedure to protect you and to protect the sample from degradation.

2) Ensure the patients hands are clean. If the hands are cold ask the patient to rub them together. It is important the puncture site is warm.

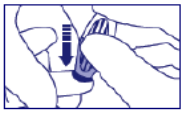
3) Identify and clean the puncture site:
- Use one of the outer 3 fingers
- Avoid finger pad and nail bed
- Clean site with alcohol wipe then dry

4) Break the Seal by Twisting.

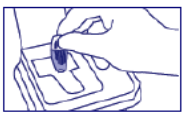


5) Hold the lancet with two fingers and place at the puncture site.

6) Gently apply pressure until the lancet is activated. A click sound will be heard when this has happened.

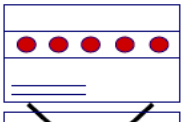


7) Safely discard the lancet in a sharps container.

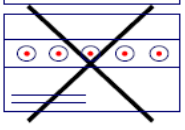


8) Spot blood onto each of the 5 circles on the card. To ensure enough blood flow:
- Hold the puncture site down
- Apply intermittent pressure

Avoid strong repetitive pressure (milking), it can damage the area.



NOTE: FILL each circle with blood. Failure to do so may reduce the sensitivity of the screening tests.



9) Leave the card to dry for a minimum of 30 **minutes**.

10) Place card along with **one bag of desiccant** in the plastic carrier attached to the request from.

11) Ensure the required details have been entered on both the request form and the dried blood spot card. Place the request card in the envelope provided and send back to the laboratory.

Specimen transport	No special needs
Minimum volume of sample	7mm Dried blood spot card
Special precautions	Ensure blood spot has dried and submit with dessicant pouch enclosed

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Spots too small, not all spots filled with blood

Back to Index

Controlled document

Hepatitis D (delta) antibody (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable
Turnaround time	7 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Herpes simplex virus types 1 and 2 PCR (Molecular Microbiology)

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood , CSF, lesion swab, eye swab
Collection	Samples for PCR testing should be collected according to local protocols. Ideally, a separate sample for PCR processing should be obtained.
Specimen transport	Ambient or refrigerated
Minimum volume of sample	Minimum volume 500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Threshold Cycle (CT)		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

Controlled document

Herpes simplex 1/2 antibody (type specific, IgM and total antibody)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

HHV6 & 7 PCR (Molecular Microbiology)

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood, CSF, BAL
Specimen transport	Ambient or refrigerated Compliance with current postal and transportation regulations is essential. Clinical samples should be collected into a sterile leak-proof container in a sealed plastic bag. Appropriate hazard labelling according to local policy should be applied. Specimens should be transported and processed as soon as possible. If processing is delayed, refrigeration is preferable to storage at room temperature.
Minimum volume of sample	Minimum volume 500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Threshold Cycle (CT)		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	4 days	**Turn round time to Final result (calendar days)**	5 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

Controlled document

HIV confirmation (screen test plus at least 2 further tests for HIV 1/2)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turn round time for Provisional result (calendar days)	4 days	**Turn round time to Final result (calendar days)**	6 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

HIV p24 Antigen (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	3mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	pg/mL		
Turn round time for Provisional result (calendar days)	4 days	**Turn round time to Final result (calendar days)**	6 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Not known

Back to Index

Controlled document

HIV resistance, integrase, tropism (Molecular Microbiology)

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA Blood
Collection	Freshly drawn whole blood in EDTA
Specimen transport	Blood to arrive at the laboratory within 6 hours of being drawn
Minimum volume of sample	3.0 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turn round time for Provisional result (calendar days)	7 days	**Turn round time to Final result (calendar days)**	10 days
Urgent results available by prior arrangement			

Clinical Information

Treatment information	In order to provide a more complete service, it would be helpful for us to know the treatment history of the patient, results of previous tests, and, if possible, CD4 counts. A specific request form for tropism will be supplied on request

Back to Index

Controlled document

HIV 1 and 2 antibody and p24 antigen screen (Dried Blood Spot) (Virology)

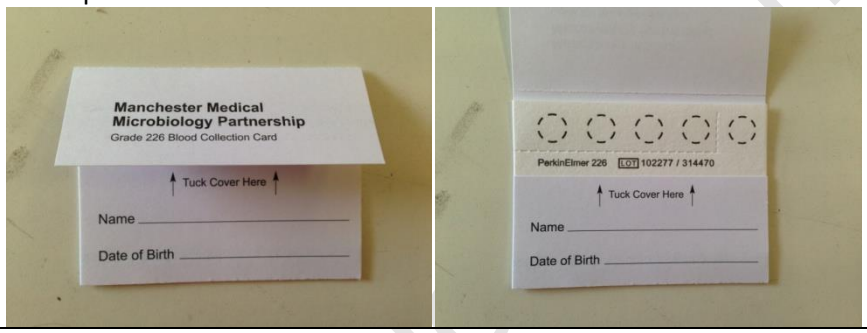
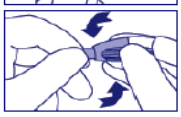
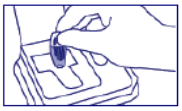
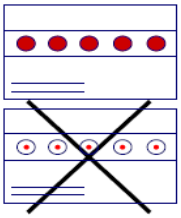
This service is designed for those patients on whom it is difficult to obtain venous blood, especially for intra venous drug users.

Contact the laboratory for supply of postal packs containing all necessary items for using this service.

Paediatric/infant packs are available on request

General Information

Back to Index

Collection container (including preservatives)	Envelope with dessicant 
Specimen Type	Dried blood spot card
Collection	**Sample Collection** 1) Disposable gloves should be worn for the whole procedure to protect you and to protect the sample from degradation. 2) Ensure the patients hands are clean. If the hands are cold ask the patient to rub them together. It is important the puncture site is warm. 3) Identify and clean the puncture site: - Use one of the outer 3 fingers - Avoid finger pad and nail bed - Clean site with alcohol wipe then dry 4) Break the Seal by Twisting.  5) Hold the lancet with two fingers and place at the puncture site. 6) Gently apply pressure until the lancet is activated. A click sound will be heard when this has happened. 7) Safely discard the lancet in a sharps container.  8) Spot blood onto each of the 5 circles on the card. To ensure enough blood flow: - Hold the puncture site down - Apply intermittent pressure Avoid strong repetitive pressure (milking), it can damage the area.  NOTE: FILL each circle with blood. Failure to do so may reduce the sensitivity of the screening tests. 9) Leave the card to dry for a minimum of 30 minutes. 10) Place card along with one bag of desiccant in the plastic carrier attached to the request from. 11) Ensure the required details have been entered on both the request form and the dried blood spot card. Place the request card in the envelope provided and send back to the laboratory.
Specimen transport	No special needs

Minimum volume of sample	7mm Dried blood spot card
Special precautions	Ensure blood spot has dried and submit with dessicant pouch enclosed

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Spots too small, not all spots filled with blood

Back to Index

Controlled document

HIV screen (4th generation: HIV1 and 2 antibody and p24 antigen)

General Information

Back to Index

Collection container (including preservatives)	6mL blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2mL
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	Not applicable
Biological reference units	Not applicable
Turnaround time	3 days Same day testing offered, contact the laboratory for 4 hour turnaround (screen and confirmation for same day request only)

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

HIV viral load (Molecular Microbiology)

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA Blood CSF
Collection	Freshly drawn whole blood in EDTA
Specimen transport	Ambient or refrigerated
Minimum volume of sample	3.0 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Copies/mL		
Dynamic range	The dynamic range for this assay is 40-10^7copies/mL		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	4 days	**Turn round time to Final result (calendar days)**	5 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

Controlled document

Human papilloma virus (Molecular Microbiology)

General Information

Back to Index

Collection container (including preservatives)	Surepath container.
Specimen Type	Cervical smear, swabs, biopsies, paraffin wax sections
Specimen transport	Ambient or refrigerated
Minimum volume of sample	600µl

Laboratory Information

Measurement units	Threshold cycle (CT)
Turnaround time	PCR result available in 3-4 days, genotype available within 2 weeks

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

Controlled document

Human T Lymphotropic virus (HTLV) 1 and 2 (Virology)

Tropical spastic paraperesis

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	2mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	3mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

JC virus PCR (Molecular Microbiology)

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood,urine, CSF
Specimen transport	Compliance with current postal and transportation regulations is essential. Clinical samples should be collected into a sterile leak-proof container in a sealed plastic bag. Appropriate hazard labelling according to local policy should be applied. Specimens should be transported and processed as soon as possible. If processing is delayed refrigeration is preferable to storage at room temperature.
Minimum volume of sample	Minimum volume 500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Copies/mL		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

Controlled document

Legionella urinary antigen detection (Virology)

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof container
Specimen Type	Urine
Collection	Urine
Specimen transport	No special needs
Minimum volume of sample	1mL urine
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turnaround time	Please contact laboratory to arrange urgent test (3 hrs) Routine testing is 24 hrs

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Not known

Back to Index

Controlled document

Measles IgG (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	AU/mL		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Measles IgM (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2ml Venous Blood
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Measles virus PCR (Molecular Microbiology)

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood, Urine
Specimen transport	Ambient or refrigerated
Minimum volume of sample	500µL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Threshold Cycle (CT)		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

Controlled document

Meningococcal DNA detection by PCR (including Pneumococcal PCR)

The Meningococcal Reference Unit provides a separate manual that is distributed to all users of the unit, and is also available on

MRU User Manual

General Information

Back to Index

Collection container (including preservatives)	EDTA Blood tube CE marked leak proof container
Specimen Type	EDTA blood, CSF, pleural fluid Where a CSF sample is available, this should be sent in addition to an EDTA blood sample
Collection	CE marked leak proof container
Specimen transport	Ambient or refrigerated **Specimen type and transport:** • EDTA blood sample collected on admission should be sent to the Meningococcal Reference Unit (MRU) if PCR confirmation is required. Heparinised, clotted blood, serum or citrated samples can be tested, but EDTA is preferred. • Whole CSF (i.e. an uncentrifuged specimen) should be sent in small sterile containers such as a sterile 2mL screw capped vial (rather than universal containers).
Minimum volume of sample	Minimum volume of 500µL
Special precautions	Remember to also collect blood cultures and a throat swab for bacteriology and label these clearly for meningococcal investigation.

Laboratory Information

Measurement units	Threshold Cycle (CT)		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	1-2 days	**Turn round time to Final result (calendar days)**	3 days

Controlled document

Turnaround time	Same day (if received by 10.00am) Results on specimens received up to 10.00am on Monday – Friday are normally available between 4.30pm and 5.00pm on the same day. Positive results will be telephoned following serogroup confirmation up to 5.30pm, or as soon as possible on the morning of the next working day, when printed reports will also be sent out. **Urgent turn-round times** Arrangements to accept couriered urgent samples for PCR or other investigations **must** be agreed with the MRU before the samples are sent. Failure to do so may result in the specimen(s) not being tested in a timely fashion

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Any specimens for PCR tests should be stored at 4^{O}C and **not** frozen prior to transport. The likelihood of a positive result decreases as the interval of sampling after starting antibiotics lengthens. Samples for PCR taken more than 48 hours after commencement of antibiotic therapy are unlikely to give useful results. CSF may remain "positive" for longer periods.

Back to Index

Controlled document

Mouth Swab (Bacteriology)

General Information

Back to Index

Collection container (including preservatives)	Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags. Collect swabs into Amies transport medium with charcoal and transport in sealed plastic bags.
Specimen Type	Mouth Swab
Collection	Collect specimens before antimicrobial therapy where possible. To assure that the preconditions of the sampling for oral infections are comparable it is advised that patients should not: 1. Eat or drink within 2 hours 2. Brush their teeth within 2 hours 3. Use any mouth rinse of disinfectant within 2 hours prior to sampling If possible samples should be taken in the morning under fasting conditions. Unless otherwise indicated collect each swab for bacterial and/or fungal culture and place in appropriate transport medium. Collect specimens other than swabs into appropriate CE marked leak proof containers and place in sealed plastic bags Sample pus if present otherwise sample any lesions or inflamed areas. A tongue depressor or spatula may be helpful to aid vision and avoid contamination from other parts of the mouth.
Specimen transport (e.g at room temperature, or within 4 hrs)	Use aseptic technique. Unless otherwise stated, swabs for bacterial and fungal culture should then be placed in Amies transport medium with charcoal
Minimum volume of sample	Not applicable
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Controlled Document

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	24 hrs	**Turn round time to Final result (calendar days)**	48-72 hrs

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Collect specimens before antimicrobial therapy where possible. Specimens should be transported and processed as soon as possible

Back to Index

Controlled document

MRSA (Bacteriology)

Most MRSA infections are healthcare-associated, but an increasing number of infections are community-acquired, with patients having no established risk factors for acquisition of MRSA. While infections with community-acquired MRSA (CA-MRSA) are usually mild they can be severe.

General Information

Back to Index

Collection container (including preservatives)	Collect swabs dry, or into Amies transport medium with charcoal
Specimen Type	Swab from Nose, Groin and manipulated wound sites Perineal swabs will be accepted if agreed with your local IPC Team
Collection	Use aseptic technique
Specimen transport	Specimens should be transported and processed as soon as possible.
Minimum volume of sample	Not applicable
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable
Turnaround time	Negative screen at 24 hrs Positive MRSA result with sensitivities at 48hrs
95% of results reported within 24hrs	

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Collect specimens before antimicrobial therapy where possible.

Back to Index

Controlled document

Mumps IgG (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	AU/mL		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Mycoplasma pneumoniae particle agglutination (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube Paired sera preferred
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	3mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Mumps IgM (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mL clotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

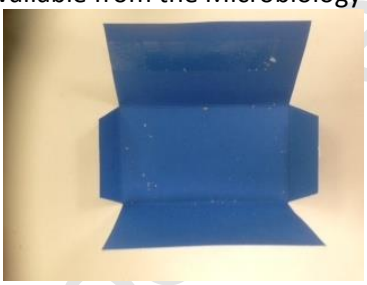
Controlled document

Mycology Culture and Microscopy (Bacteriology)

Infection by dermatophytes is cutaneous and generally restricted to the non-living cornified layers in patients who are immunocompetent. This is because the dermatophyte group of fungi are generally unable to penetrate tissues which are not fully keratinised (ie deeper tissues and organs). However, reactions to such infections can range from mild to severe, depending upon the host's immune response, the virulence of the infecting species, the site of infection and environmental factors.

General Information

Back to Index

Collection container (including preservatives)	Specimens received in sterile containers in sealed plastic bags. Dermapak collection kits are available from the Microbiology Department. 
Specimen Type	Hair, Skin, Nails
Collection	Specimens should be collected into folded paper square Dermapak collection kits secured and placed in a plastic bag designed specifically for the collection and transport of skin, nail and hair samples. Skin scrapings and plucked hairs are the ideal specimens for diagnosing scalp infections, but in addition a sterile disposable toothbrush can be used for the collection of samples. These should be transported to the laboratory in a sterile plastic receptacle. If sufficiently long, hairs should be plucked with forceps and wrapped in black paper or commercial transport packs together with flakes of skin.
Specimen transport	Specimens should be kept at room temperature, and transported and processed as soon as possible. Samples should be allowed to dry out and kept at room temperature. Provided the samples are kept dry, the fungus will remain viable for several months.
Minimum volume of sample	Not applicable
Special precautions	None known

Laboratory Information

Controlled document

Measurement units	Not applicable
Turnaround time	Culture up to 3 weeks Microscopy 24 -48 hrs

Clinical Information

Clinical decision points	Clinical advice on Mycology results is available by contacting the laboratory

Back to Index

Controlled document

Neisseria meningitidis
Functional antibody to serogroups A, C, W and Y by internationally standardised serum bactericidal antibody assays.

General Information

Back to Index

Collection container (including preservatives)	Clotted Blood/serum,paired sera, no preservatives
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	Minimum volume 0.2mL per serogroup
Specimen type	Clotted Blood/serum,paired sera
Special precautions	If the serum bactericidal activity is reported with the comment 'SBA titre includes non-complement mediated lysis', then the result must be interpreted with caution. If in doubt, please telephone 0161 276 6791 for advice

Laboratory Information

Measurement units	SBA titres expressed as the reciprocal of the final serum dilution giving ≥ 50% killing at 60 minutes calculated from the number of colony forming units (cfu) in the control
Biological reference units	Not applicable
Turnaround time	28 Working Days

Clinical Information

Clinical decision points	The putative protective SBA titre for serogroup C is ≥ 8. A cut off of ≥ 8 is currently considered protective for serogroups A,Y and W
Factors known to significantly affect the results	As this is a 'killing type' assay using live bacteria, antibiotics can impact on results. A control to monitor this is included in the assay.

Back to Index

Controlled document

Functional antibody to Neisseria meningitidis serogroup B by Serum Bactericidal Antibody Assay (SBA)

General Information

Back to Index

Collection container (including preservatives)	Clotted blood sample tube (no preservative)
Specimen Type	Clotted Blood/serum,paired sera
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	Minimum volume 0.6mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	SBA Titres expressed as the reciprocal of the final serum dilution giving ≥ 50% killing at 60 minutes calculated from the number of colony forming units (cfu) in the control
Biological reference units	Not applicable
Turnaround time	28 Working Days

Clinical Information

Clinical decision points	For putative protection against serogroup B, the SBA titre must be ≥ 4 for at least 2 of the 3 strains used.
Factors known to significantly affect the results	As this is a 'killing type' assay using live bacteria, antibiotics can impact on results. A control to monitor this is included in the assay. The effect and impact of Eculizumab therapy on this assay is currently under investigation

Back to Index

Controlled document

Neisseria meningitidis: Serogrouping and outer membrane typing

General Information

Back to Index

Collection container (including preservatives)	Not applicable
Specimen Type	Referral of viable pure cultures on slopes and transport swabs
Collection including preservative	Not applicable
Specimen transport	Only submit viable isolate samples in approved packaging (UN3373) which are suitable for Royal Mail post (airfreight) or commercial couriers such as HAYS DX. Agar slopes: where possible pure, viable cultures; inoculated on chocolate (heated) blood agar, blood agar or Dorset egg slopes after establishing growth by overnight incubation at 37°C. On occasion it may be necessary to submit an unincubated culture. This can save time but requires a heavy inoculum to ensure survival in transport. Please indicate on the request form if the material (slope) has not been incubated. Short-term storage of sloped cultures is optimal at 30°C if there are delays before submission.
Minimum volume of sample	Not applicable
Special precautions	Non-viable cultures: cultures which are no longer viable may still be considered for characterisation by molecular based methods after consultation with the MRU. A heavy inoculum of the inert material on a slope may be submitted with an appropriate request form.

Laboratory Information

Measurement units	Not applicable
Biological reference units	Not applicable
Turnaround time	Serogroup telephoned to sending laboratory within 24 – 72hrs. The final printed report is submitted within 1 - 2 weeks

Controlled document

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Contaminated culture will delay the results.

Back to Index

Controlled document

Neisseria meningitidis Minimum inhibitory concentration

General Information

Back to Index

Collection container (including preservatives)	Not applicable
Specimen Type	Referral of Viable pure cultures on slopes and transport swabs
Collection including preservative	Not applicable
Specimen transport	Only submit viable isolate samples in approved packaging (UN3373) which are suitable for Royal Mail post (airfreight) or commercial couriers such as HAYS DX. Agar slopes: where possible pure, viable cultures; inoculated on chocolate (heated) blood agar, blood agar or Dorset egg slopes after establishing growth by overnight incubation at 37°C. On occasion it may be necessary to submit an unincubated culture. This can save time but requires a heavy inoculum to ensure survival in transport. Please indicate on the request form if the material (slope) has not been incubated. Short-term storage of sloped cultures is optimal at 30°C if there are delays before submission.
Minimum volume of sample	Not applicable
Special precautions	The MICs routinely determined on submitted isolates are: penicillin, cefotaxime, rifampicin, ciprofloxacin and sulphonamide (sulphamethoxazole) using Etest (Biomerieux) gradient diffusion methodology. Other antibiotic susceptibility tests may be performed on request.

Laboratory Information

Measurement units	mg/L
Biological reference units	Not applicable
Turnaround time	48 hrs if requested Routine final report is issued within 1-2 weeks

Controlled document

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	None Known

Back to Index

Controlled document

Neisseria meningitidis PorA sequencing from cultures

General Information

Back to Index

Collection container (including preservatives)	Not applicable
Specimen Type	Referral of Viable pure cultures on slopes and transport swabs
Collection including preservative	Not applicable
Specimen transport	Only submit viable isolate samples in approved packaging (UN3373) which are suitable for Royal Mail post (airfreight) or commercial couriers such as HAYS DX. Agar slopes: where possible pure, viable cultures; inoculated on chocolate (heated) blood agar, blood agar or Dorset egg slopes after establishing growth by overnight incubation at 37°C. On occasion it may be necessary to submit an unincubated culture. This can save time but requires a heavy inoculum to ensure survival in transport. Please indicate on the request form if the material (slope) has not been incubated. Short-term storage of sloped cultures is optimal at 30°C if there are delays before submission.
Minimum volume of sample	Not applicable

Laboratory Information

Measurement units	Not applicable
Biological reference units	Not applicable
Turnaround time	3 working days upon urgent request.

Clinical Information

Clinical decision points	Not applicable

Back to Index

Controlled Document

Mycobacteria – Culture and Sensitivity (Bacteriology)

General Information Back to Index

Collection container (including preservatives)	Use aseptic technique. Collect specimens in appropriate CE marked leak proof containers and transport in sealed plastic bags.
Specimen Type	Sputum, gastric washing, sterile site body fluids (CSF, pleural fluids etc), urine, skin or tissue biopsies, bone marrow, bronchoalveolar washings, blood, post-mortem specimens, bone
Collection	If sample volume is insufficient for both, culture is usually preferred to microscopy due to greater sensitivity.
Specimen transport	Specimens should be transported and processed as soon as possible. Specimens should be transported and received in the laboratory within one working day of collection and processed as soon as possible. Requirements of individual testing laboratories should be referred to. If processing is delayed, refrigeration is preferable to storage at ambient temperature. **Blood and Bone Marrow** Request the MB/BacT blood culture bottles from the laboratory on 291 4424, and request a porter to collect. These bottles MUST NOT be sent via the pod system. **Sputum specimens** Sputum specimens should be relatively fresh (less than 1 day old) to minimise contamination. Purulent specimens are best. Three samples of ≥5mL should be collected approximately 8-24 hours apart with at least one from early morning. Samples taken early morning (ie shortly after patient waking) have the greatest yield. When the cough is dry, physiotherapy, postural drainage or inhalation of nebulised saline ('sputum induction') before expectoration may be helpful. **Bronchoalveolar lavage/bronchial washings**

Controlled Document

	These may be sent if spontaneous or induced sputum is unavailable or if such specimens are AFB smear negative. **Note:** Contamination of the bronchoscope with tap water, which may contain environmental *Mycobacterium* species, should be avoided. Minimum sample size is preferably 5mL. **Urine specimens** Whole urine specimens should be collected in the early morning on three consecutive days in a CE marked leak proof container (that does not contain boric acid), and placed in a sealed plastic bag. **Sterile site body fluids** Sterile site body fluids (CSF, pleural fluid, etc) will normally not require decontamination, and can be inoculated directly to neutral media. However, sterile site body fluids can be treated with acid if necessary. Collect aseptically as much (eg >6mL in adults) CSF sample as possible into a CE Marked leak proof container in a sealed plastic bag. If only a small volume is available after initial lumbar puncture, and the findings of cell counts and protein suggest TB meningitis, a second procedure should be considered to obtain a larger volume to improve chances of achieving positive cultures. It should be noted that pleural or pericardial fluids are not very sensitive samples for the detection of *M. tuberculosis,* and that a concurrent pleural or pericardial biopsy taken with the fluid is more useful. A negative result on these fluids does not rule out the diagnosis.
Minimum volume of sample	1mL of Sputum 5mL of BAL 6mL of CSF
Special precautions	For the initial diagnosis of mycobacterial infection all specimens should be fresh and taken, whenever possible, before anti-tubercular treatment is started. 'Other' antimicrobials may also have significant anti-mycobacterial activity, notably the fluoroquinolones such as ciprofloxacin, levofloxacin or moxifloxacin, and the macrolides such as clarithromycin or azithromycin.

Laboratory Information

Measurement units	Not Applicable
Biological reference units	Not Applicable
Turnaround time	24 hrs to 6 weeks Mycobacterium PCR available within 3 days

Controlled document

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	EDTA, even in trace amounts, inhibits the growth of some *Mycobacterium* species.

Back to Index

Controlled document

Nose Swab (Bacteriology)

Nasal colonisation with *Staphylococcus aureus* increases the risk of staphylococcal infections at other sites of the body such as postoperative wounds and dialysis access sites. Single organism nasal screens for *Staphylococcus aureus* may be requested as part of a PVL outbreak as part of a IPC investigation.

General Information

Back to Index

Collection container (including preservatives)	Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags. Collect swabs into Amies transport medium with charcoal and transport in sealed plastic bags.
Specimen Type	Nose Swab
Collection	Collect specimens before antimicrobial therapy where possible. Plain sterile cotton wool swab. Sample the anterior nares by gently rotating the swab over the mucosal surface. Unless otherwise stated, swabs for bacterial and fungal culture should then be placed in Amies transport medium with charcoal
Specimen transport	Specimens should be transported and processed as soon as possible. If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.
Minimum volume of sample	Not applicable

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	48 hrs	**Turn round time to Final result (calendar days)**	48-72 hrs

Clinical Information

Controlled document

Clinical decision points	Not applicable
Factors known to significantly affect the results	Special considerations to minimise deterioration If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Limitations

Back to Index

Nasal swabs should not be taken to investigate the presence of Bordetella pertussis.

Controlled document

Ova, Cysts and Parasites (Bacteriology)

As part of our quality improvements for the Parasitology service within the Microbiology department at CMFT, we have outlined the current testing requirements in order to provide an efficient service for the investigation of ova, cysts and parasites (OCP) from samples other than blood.

Our aim is to clarify the requesting and selection of appropriate enteric samples for the examination of ova, cysts and parasites. Back to Index

Pathogen	Sample required	Comment
Cryptosporidiumsp. **&** ***Giardia lamblia***	**Faeces**	**There is NO NEED to request OCP** **All enteric samples for bacterial culture will automatically be tested for these.**
Other parasitic infestations **(other than** ***Cryptosporidiumsp.*** **&** ***Giardia lamblia)***	**3 faecal samples over a period of 10 days**	**OCP investigation must be requested** **Samples labelled and dated:-** **1 of 3, 2 of 3 and 3 of 3.** **Information required:-** • **Foreign travel history** • **Blood eosinophil count** • **Duration of diarrhoea** • **Presence/absence of abdominal symptoms** • **Evidence of malabsorption**
Threadworm. ***(E. vermicularis*** **ova.)**	**Perianal Swab in saline**	**Rotate a saline moistened swab around the anus of the child first thing in the morning.**
Bilharzia ***(Schistosoma haematobium)***	**Urine**	**Sample collected between 10am and 2pm. Alternatively a 24hr collection of terminal samples of urine may be obtained.**
Worms seen in stool	**Worm**	**Please send actual worm seen in a universal container**
If any other types of samples require testing, or other parasite investigations required, please contact the Microbiology department on 0161 276 6717. **If amoebic dysentery is suspected and clinical advice needed please**		

Controlled Document

tel 0161 276 6333

On occasions, we may need to refer samples to a reference laboratory for specialised testing procedures and further samples may be necessary.

Andrew Dodgson
Consultant Microbiologist, Infection Control Doctor
and Clinical Lead for Microbiology

Back to Index

Controlled document

Human Parvovirus B19 IgG (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Human Parvovirus B19 IgM (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Human Parvovirus B19 viral load (Molecular Microbiology)

Slapped cheek syndrome, Fifth disease

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood, Amniotic Fluid
Specimen transport	Ambient or refrigerated
Minimum volume of sample	500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Copies/mL
Turnaround time	2-3 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

Controlled document

Pneumococcal urinary antigen detection

General Information

Back to Index

Collection container (including preservatives)	10mL urine
Specimen Type	Urine
Collection	10mL urine
Specimen transport	No special needs
Minimum volume of sample	10mL urine

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	24 hrs	**Turn round time to Final result (calendar days)**	48 hrs

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	None known

Back to Index

Controlled document

Pneumocystis jirovecii PCR (Molecular Microbiology)

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood, BAL, sputum
Specimen transport	Ambient or refrigerated
Minimum volume of sample	500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Threshold Cyle (CT)		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

Controlled document

Pregnancy Test (Bacteriology)

The preferred sample is a blood sample for biochemistry, however, if blood cannot be collected, a urine specimen may be sent to Microbiology. hCG is a glycoprotein hormone produced by the blastocyst. The appearance of hCG soon after conception and its subsequent rise in concentration during early gestational growth, makes it a good marker for the early detection of pregnancy.

General Information

Back to Index

Collection container (including preservatives)	A urine sample collected at any time of the day is suitable, but a first morning sample is recommended
Specimen Type	Urine
Collection including preservative	Samples must be collected in a clean and dry container.
Specimen transport	Samples may bestored at 2-8°C for up to 72hrs
Minimum volume of sample	The assay requires approximately 200µl for a single test.
Special precautions	Analysis should cannot be performed on visibly blood stained samples or dilute samples (low specific gravity)

Laboratory Information

Measurement units	IU/L
Biological reference units	Not applicable
Turnaround time	Please contact the laboratory for urgent tests 2 hrs turnaround time

Controlled document

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	The Clinitest hCG Pregnancy Test is not validated for use with urine samples containing preservatives.Skin cleansers containing chlorhexadine may affect the accuracy of the result. High protein concentrations (eg. blood staining) will cause a falsely elevated Specific Gravity result.

Back to Index

Controlled document

Q Fever (Coxiella burnettii) IgG and IgM (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube Paired sera preferred
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Respiratory Samples for Culture (Bacteriology)

General Information

Back to Index

Collection container (including preservatives)	
Specimen Type	Bronchial aspirate, transthoracic aspirate, bronchoalveolar lavage, transtracheal aspirate, bronchial brushings, protected catheter specimens, bronchial washings, endotracheal tube specimens, sputum – expectorated
Collection	All specimens should be fresh and taken before antimicrobial treatment is started.
Specimen transport	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.
Minimum volume of sample	1 mL
Special precautions	Please send to the laboratory without delay

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	48 hrs	**Turn round time to Final result (calendar days)**	48 – 72 hrs

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend. Sputum may be refrigerated for up to 2-3 h without an appreciable loss of pathogens. Any delay beyond this time may allow overgrowth of Gram-negative bacilli, and Haemophilus species and *S. pneumoniae* may be rendered non-viable

Controlled document

Back to Index

Respiratory virus PCR (Molecular Microbiology)

Respiratory screen including
1) Influenza A inc H1N1 (avian types: contact lab)
2) Influenza B
3) Parainfluenza viruses 1,2,3
4) Respiratory syncytial virus
5) Metapneumovirus
6) Adenovirus
7) Rhinovirus

General Information

Back to Index

Specimen Type and container	Nose and/or throat swab (virus transport medium) BAL/Sputum (sterile container) NPA (Sterile container)
Specimen transport	Ambient or refrigerated
Minimum volume of sample	Minimum volume 500µl
Special precautions	For avian flu please contact the laboratory with full travel history

Laboratory Information

Measurement units	Threshold cycle (CT)		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	2 days	**Turn round time to Final result (calendar days)**	3 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Controlled document

In order to provide the most clinically beneficial, operationally efficient and cost effective service the laboratory employs a number of multiplex assays and testing algorithms, which are based on UK Standards for Microbiology Investigations; it is normal practice to use these even when not all tests within the multiplex or algorithm are requested.

It is our policy to report all results along with the requested result to provide as much information as possible to aid diagnosis

Backto Index

Controlled document

Rubella IgG (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	IU/mL		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Rubella IgM (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	IU/mL		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Streptococcal serology (including anti-streptolysin 'O' and anti-streptodornase B)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL blood tube
Special precautions	Single or paired sera, collected 7 days apart

Laboratory Information

Measurement units	ASD U/mL ASO IU/mL		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	5 days	**Turn round time to Final result (calendar days)**	7 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Streptococcus pneumoniae IgG antibody determination by flow analysis bead assay for 12 pneumococcal serotypes (Vaccine Evaluation Unit)

General Information

Back to Index

Collection container (including preservatives)	Clotted blood sample tube (no preservative)
Specimen Type	Clotted blood sample tube (no preservative)
Specimen transport	Transport to the laboratory without delay
Minimum volume of sample	Clotted Blood/serum,paired sera; Minimum volume 0.1mL
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	µg/mL
Biological reference units	Not applicable
Turnaround time	28 Working Days

Clinical Information

Clinical decision points	≥ 0.35 µg/mL; putative correlate of protection
Factors known to significantly affect the results	None known

Limitations

Back to Index

Controlled document

Syphilis Confirmation including Immunoblot (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mL blood tube Clean container for CSF
Specimen Type	Clotted Blood, CSF
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	1.5 mL blood 0.5 mL CSF
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Turn round time for Provisional result (calendar days)	5 days	**Turn round time to Final result (calendar days)**	7 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Dried Blood Spot Syphilis antibody

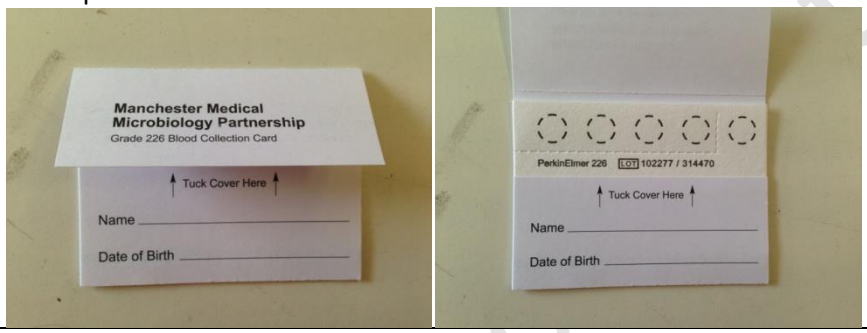
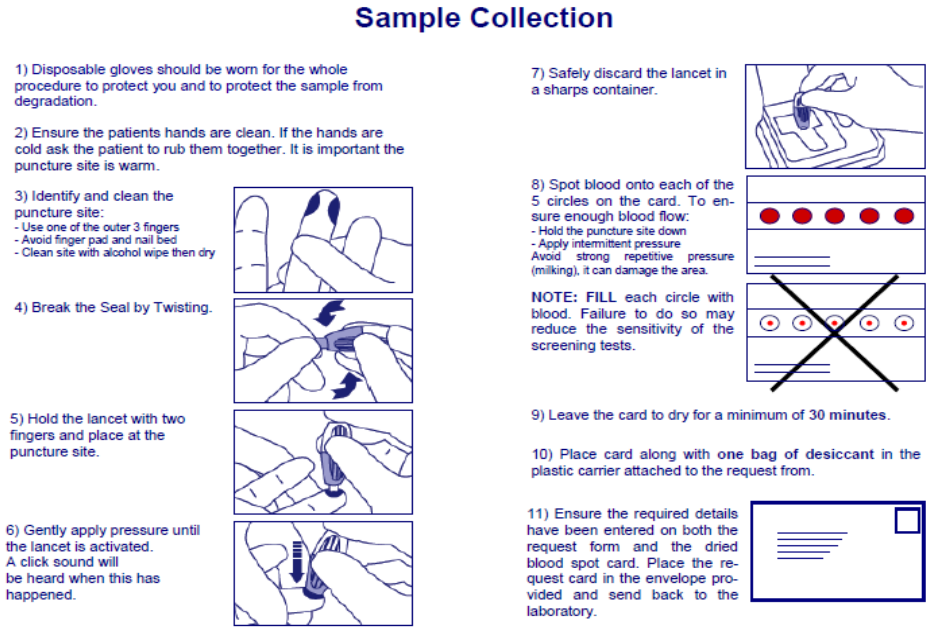
This service is designed for those patients on whom it is difficult to obtain venous blood, especially for intra venous drug users.

Contact the laboratory for supply of postal packs containing all necessary items for using this service.

Paediatric/infant packs are available on request

General Information

Back to Index

Collection container (including preservatives)	Envelope with dessicant  Manchester Medical Microbiology Partnership Grade 226 Blood Collection Card Tuck Cover Here Name Date of Birth PerkinElmer 226 LOT 102277 / 314470 Tuck Cover Here Name Date of Birth
Specimen Type	Dried blood spot card
Collection	 Sample Collection 1) Disposable gloves should be worn for the whole procedure to protect you and to protect the sample from degradation. 2) Ensure the patients hands are clean. If the hands are cold ask the patient to rub them together. It is important the puncture site is warm. 3) Identify and clean the puncture site: - Use one of the outer 3 fingers - Avoid finger pad and nail bed - Clean site with alcohol wipe then dry 4) Break the Seal by Twisting. 5) Hold the lancet with two fingers and place at the puncture site. 6) Gently apply pressure until the lancet is activated. A click sound will be heard when this has happened. 7) Safely discard the lancet in a sharps container. 8) Spot blood onto each of the 5 circles on the card. To ensure enough blood flow: - Hold the puncture site down - Apply intermittent pressure Avoid strong repetitive pressure (milking), it can damage the area. NOTE: FILL each circle with blood. Failure to do so may reduce the sensitivity of the screening tests. 9) Leave the card to dry for a minimum of 30 minutes. 10) Place card along with one bag of desiccant in the plastic carrier attached to the request from. 11) Ensure the required details have been entered on both the request form and the dried blood spot card. Place the request card in the envelope provided and send back to the laboratory.
Specimen transport	No special needs
Minimum volume of sample	7mm Dried blood spot card

Special precautions	Ensure blood spot has dried and submit with dessicant pouch enclosed

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Spots too small, not all spots filled with blood

Back to Index

Controlled document

Syphilis (Treponema pallidum) screen (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood , CSF
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Tetanus IgG Antibody Determination (Vaccine Evaluation Unit)

Tetanus IgG antibody determination by flow analysis assay bead assay.

General Information

Back to Index

Collection container (including preservatives)	Clotted blood sample tube (no preservative)
Specimen Type	Clotted Blood/serum,paired sera
Collection	Clotted Blood/serum,paired sera
Specimen transport	At ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	Clotted Blood/serum,paired sera; **Minimum volume 0.1mL per serogroup**
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	µg/mL
Biological reference units	Not applicable
Turnaround time	28 Working Days

Clinical Information

Clinical decision points	IgG of ≥ 0.1 of IU/mL considered protective
Factors known to significantly affect the results	none known

Back to Index

Controlled document

Throat Swab for Culture (Bacteriology)

General Information

Back to Index

Collection container (including preservatives)	Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags. Collect swabs into Amies transport medium with charcoal and transport in sealed plastic bags.
Specimen Type	Swab
Collection	Throat swab taken from the tonsillar area and/or posterior pharynx, should be taken avoiding the tongue and uvula.
Specimen transport	Specimens should be transported and processed as soon as possible.
Minimum volume of sample	Not applicable
Special precautions	Fastidious anaerobes, such as *Fusobacterium necrophorum*, will not be recovered from samples that are delayed. When Diptheria is suspected, advice from a Consultant Microbiologist should be sought prior to sample submission. Scarlet fever presentations should be noted on the request form as they are notifiable. Pharyngeal swabs for *N.meningitidis* carriage should be clearly labelled. Pharyngeal swabs for *N.gonorrhoeae* carriage are not advised; inoculation directly onto culture media at the time of collection within a GUM clinic is recommended.

Laboratory Information

Measurement units	Not applicable
Biological reference units	Not applicable

Controlled document

Turn round time for Provisional result (calendar days)	48 hrs	**Turn round time to Final result (calendar days)**	48 – 72hrs

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Collect specimens before antimicrobial therapy where possible

Back to Index

Controlled document

Tips / Intravascular cannulae (Bacteriology)

Please note the tips from Urinary catheters are not suitable for Microbiological analysis.

General Information

Back to Index

Collection container (including preservatives)	Intravascular cannulae/Tips should be collected in CE marked leak proof container
Specimen Type	Line tips (eg CVP or Hickman lines),
Collection	Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags..
Specimen transport	Specimens should be transported and processed as soon as possible. If processing is delayed, refrigeration is preferable to storage at ambient temperature.
Minimum volume of sample	Cut off 4 cm of the tip.
Special precautions	Disinfect the skin around the cannula entry site, remove cannula using aseptic technique, and cut off 4cm of the tip into an appropriate CE marked leak proof container using sterile scissors. Place in sealed plastic bags for transport. Cannulae should only be sent if there is evidence of infection.

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	24 hrs	**Turn round time to Final result (calendar days)**	48-72 hrs

Clinical Information

Clinical decision points	Not applicable

Back to Index

Controlled Document

Tissue and Biopsies (Bacteriology)

A biopsy may be defined as a portion of tissue removed from the living body for further examination. Ideally these specimens should be discussed with the laboratory prior to sampling to ensure that transport and processing are timely and appropriate tests are performed

General Information

Back to Index

Collection container (including preservatives)	Tissue or biopsy material in a microbiologically CE marked leak proof container without formalin.
Specimen Type	Tissue, Biopsy Ulcer Biopsy:
Collection	Collect specimens before antimicrobial therapy where possible.
Specimen transport	Specimens should be transported and processed as soon as possible
Minimum volume of sample	Large enough to carry out all microscopy preparations and cultures.
Special precautions	If specimen is small, place it in sterile water to prevent desiccation.

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	Gram stain 30mins – 2hours within receipt into the Microbiology laboratory , on request. Culture 24 hrs	**Turn round time to Final result (calendar days)**	48-72 hrs

Clinical Information

Controlled document

Clinical decision points	Not applicable
Factors known to significantly affect the results	Specimens received in formol-saline are not suitable for culture. If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48 hr are undesirable.

Back to Index

Controlled document

Toxoplasma PCR (Molecular Microbiology)

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood, amniotic fluid
Specimen transport	Ambient or refrigerated
Minimum volume of sample	500µl
Special precautions	Please send to the laboratory without delay

Laboratory Information

Measurement units	Threshold Cycle (CT)		
Biological reference units	Not applicable		
Turn round time for Provisional result (calendar days)	7 days	**Turn round time to Final result (calendar days)**	10 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

Controlled document

Toxoplasma avidity

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	No special needs
Minimum volume of sample	2 mL
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	Low avidity; High avidity		
Turn round time for Provisional result (calendar days)	5 days	**Turn round time to Final result (calendar days)**	7 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Toxoplasma IgG (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	No special needs
Minimum volume of sample	2 mL
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	IU/mL		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Toxoplasma IgM (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	No special needs
Minimum volume of sample	2 mL
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	IU/mL		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Treponema pallidum (syphilis) PCR (Molecular Microbiology)

General Information

Back to Index

Collection container (including preservatives)	CE marked leak proof container
Specimen Type	Swab
Specimen transport	Ambient or refrigerated
Minimum volume of sample	Not applicable
Special precautions	Send to the laboratory without delay

Laboratory Information

Measurement units	Threshold Cycle (CT)		
Turn round time for Provisional result (calendar days)	4 days	**Turn round time to Final result (calendar days)**	7 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

Controlled document

Urines (Bacteriology)

Urinary tract infection (UTI) results from the presence and multiplication of microorganisms in one or more structures of the urinary tract with associated tissue invasion. This can give rise to a wide variety of clinical syndromes. These include acute and chronic pyelonephritis (kidney and renal pelvis), cystitis (bladder), urethritis (urethra), epididymitis (epididymis) and prostatitis (prostate gland). Infection may spread to surrounding tissues (eg perinephric abscess) or to the bloodstream.
The microscopical presence of White Blood Cells (WBC) is quantified and correlated to bacterial growth to diagnose a urinary tract infection. The presence of Red Blood Cells (RBC) and epithelial cells is also reported.

General Information

Back to Index

Collection container (including preservatives)	Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags.
Specimen Type	Urine: Clean catch urine (CCU) Mid stream urine(MSU) Supra pubic aspirate (SPA) Bladder urine & Catheter urine
Collection	MSU and clean catch urines are the most commonly collected specimens and are recommended for routine use. Suprapubic aspirate (SPA) is seen as the "gold standard" but is usually reserved for clarification of equivocal results from voided urine in infants and small children. Before SPA is attempted it is preferable to use ultrasound guidance to determine the presence of urine in the bladder.
Specimen transport	Delays and storage at room temperature allow organisms to multiply which generates results that do not reflect the true clinical situation. Where delays in processing are unavoidable, refrigeration at 4°C is essential.
Minimum volume of sample	A minimum volume of 0.5mL

Control Document

	For Mycobacteria culture collect 3 consecutive early morning urine samples in 200mL containers
Special precautions	Specimens should be transported and processed within 4 hr

Laboratory Information

Measurement units	$X10^6$/L (WBC / RBC) Urine culture is quanitified (cfu)
Biological reference units	Not applicable
Turnaround time	30 – 60 mins for cell count if laboratory contacted prior to sending 24 – 72 hrs for culture
95% of results are available within 24 hrs	

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Collect specimens before antimicrobial therapy where possible.

Back to Index

Controlled document

Varicella-zoster IgG (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mL clotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	No special needs
Minimum volume of sample	2 mL
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	mIU/mL		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days
If urgent please contact the laboratory for 4 hours turnaround.			

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Varicella-zoster IgM (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mL clotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	No special needs
Minimum volume of sample	2 mL
Special precautions	None known

Laboratory Information

Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

Back to Index

Controlled document

Varicella-zoster virus PCR (Molecular Microbiology)

Chickenpox, Shingles, Encephalitis, meningitis, rash, lesion

General Information

Back to Index

Specimen container	CE marked leak proof container
Specimen Type	EDTA blood, CSF, swab
Specimen transport	Ambient or refrigerated Compliance with current postal and transportation regulations is essential Clinical samples should be collected into a sterile leak-proof container in a sealed plastic bag. Appropriate hazard labelling according to local policy should be applied. Specimens should be transported and processed as soon as possible.
Minimum volume of sample	Minimum volume 500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at room temperature.

Laboratory Information

Measurement units	Threshold Cycle (CT)		
Turn round time for Provisional result (calendar days)	3 days	**Turn round time to Final result (calendar days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

Back to Index

Controlled document

Wounds: Skin, Superficial, Non-surgical (Bacteriology)

Infections of the skin and subcutaneous tissues are caused by a wide range of organisms. Organisms isolated from a clinically infected wound may be clinically significant but this decision needs to be made in conjunction with clinical details. Examination of biopsies might be more effective for diagnosis than swabs (See Tissue & Biopsy Section)

General Information

Back to Index

Specimen container	Unless otherwise stated, swabs for bacterial and fungal culture should then be placed in Amies transport medium with charcoal. Samples of pus/exudate, if present, are preferred to swabs
Specimen Type	
Collection	Sample a representative part of the lesion. Swabbing dry crusted areas is unlikely to yield the causative pathogen. If specimens are taken from ulcers, the debris on the ulcer should be removed and the ulcer should be cleaned with saline.
Specimen transport	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable
Minimum volume of sample	Not applicable
Special precautions	If only a minute amount of pus or exudate is available it is preferable to send a pus/exudate swab in transport medium to minimise the risk of desiccation during transport.

Controlled Document

Laboratory Information

Measurement units	Not Applicable		
Biological reference units	Not Applicable		
Turn round	24 hrs	**Turn round time to**	48-72 hrs

time for Provisional result (calendar days)		**Final result (calendar days)**	

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Collect specimens before antimicrobial therapy where possible. Specimens should be transported and processed as soon as possible to prevent deterioration.

Back to Index

Controlled document

7.0 REFERRAL LABORATORIES

Analyte	Laboratory	Address	CPA/UKAS accreditation
16S Panbacterial PCR	PHE Colindale	Department for Bioanalysis & Horizon Technologies PHE Colindale 61 Colindale Avenue LONDON NW9 5HT	CPA 2792
18S Panfungal PCR	Bristol Mycology	PHE Bristol Myrtle Road Kingsdown	CPA 0042
Aciclovir levels	Southmead, Bristol	Antimicrobial Reference Laboratory Southmead Bristol	CPA 0038
Actinomyces	Cardiff	Anaerobic Reference Laboratory University Hospital of Wales Heath Park CARDIFF CF4 4XW	CPA 2913
Adenovirus typing	PHE Colindale	Virus Reference Department Microbiology Services PHE Colindale 61 Colindale Avenue London NW9 5HT	CPA 2904

Analyte	Laboratory	Address	CPA/UKAS accreditation
Amoebiasis	Hospital for Tropical Diseases London	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	CPA 2354
Antifungal drug assays	MRCM Wythenshawe	Mycology Reference Centre Manchester Wythenshawe Hospital	CPA 0635
Arbovirus	RIPL, Porton Down	PHE Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	CPA 1612
Anti-staphylolysin	PHE Colindale	Staphylococcus Reference Unit (SRU)	CPA 2904
Avian antibodies	Carlisle	Carlisle North Cumbria Healthcare NHS Foundation Trust	CPA 0484
Bartonella serology	PHE Colindale	Bacteriology Reference Department (RVPBRU) 61 Colindale Avenue London NW9 5HT	CPA 2904
Babesia serology	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	CPA 2354

Analyte	Laboratory	Address	CPA/UKAS accreditation
Bacterial identification, typing & sensitivity testing	PHE Colindale	Public Health England Colindale 61 Colindale Avenue London NW9 5EQ	CPA 2792
Borrelia recurrentis serology	RIPL, Porton Down	PHE Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	CPA 1612
C. botulinum antibody	RIPL, Porton Down	PHE Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	CPA 1612
Brucella antibodies	Royal Liverpool	Brucella Reference Unit Aintree University Hospital	CPA 0453
Burkholderia pseudomallei serology	PHE Colindale	AMRHAI PHE Colindale Bacteriology 61 Colindale Avenue LONDON NW9 5HT	CPA 1834
TSE	Western General, Edinburgh	National CJD Surveillance Unit Western General Hospital	Laboratory work recognised by WHO, & follow CPS standards, inspected by HSE & perform well in European QC schemes
Chikungunya	RIPL	PHE Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	CPA 1612
Coccidiomycosis	Bristol mycology	PHE Bristol Myrtle Road Kingsdown	CPA 0042

Analyte	Laboratory	Address	CPA/UKAS accreditation
Chlamydiophila pneumoniae Ab/PCR	Bristol PHE /Colindale	PHE Bristol Myrtle Road Kingsdown	CPA 0042
Cryptococcal Antigen	Bristol mycology	PHE Bristol Myrtle Road Kingsdown	CPA 0042
Cryptosporidium	Swansea	Cryptosporidium Reference Unit (CRU) Swansea NPHS Microbiology Swansea Singleton Hospital Sketty Swansea SA2 8QA	CPA 2913
Cysticercosis	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	CPA 2354
Delta Antigen Hepatitis D (delta)/ Antibody / PCR	PHE Colindale	Virus Reference Department Microbiology Services PHE Colindale 61 Colindale Avenue London NW9 5HT	CPA 2904
Dengue Fever	RIPL, Porton Down	PHE Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	CPA 1612

Analyte	Laboratory	Address	CPA/UKAS accreditation
E. coli 0157	PHE Colindale	Gastrointestinal bacterial reference unit (GBRU) PHE Colindale Bacteriology 61 Colindale Avenue LONDON NW9 5HT Tel: 020 8200 4400	CPA 1683
E. coli VTEC antibodies	PHE Colindale	Gastrointestinal bacterial reference unit (GBRU) PHE Colindale Bacteriology 61 Colindale Avenue LONDON NW9 5HT Tel: 020 8200 4400	CPA 1683
Echinococcus (hydatid)	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	CPA 2354
Ehrlichia	RIPL, Porton Down	PHE Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	CPA 1612
Enterovirus typing	PHE Colindale	Virus Reference Department Microbiology Services PHE Colindale 61 Colindale Avenue London NW9 5HT	CPA 2904

Analyte	Laboratory	Address	CPA/UKAS accreditation
Fasciola	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	CPA 2354
Filaria	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	CPA 2354
Ganciclovir levels	Southmead, Bristol	Antimicrobial Reference Lab. Med. Micro. Dept. North Bristol NHS Trust Southmead Hospital (Old pathology block) Bristol BS10 5NB	CPA 0038
Galactomannan (Aspergillus antigen)	Bristol Mycology	PHE Bristol Myrtle Road Kingsdown	CPA 0042
Giardia	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London	CPA 2354

		WC1E 6JB	
Analyte	**Laboratory**	**Address**	**CPA/UKAS accreditation**
B-d-glucan	MRCM Wythenshawe	Mycology Reference Centre Manchester Wythenshawe Hospital	CPA 0635
HHV6/7 antibodies / PCR	PHE Colindale	Virus Reference Department Microbiology Services PHE Colindale 61 Colindale Avenue London NW9 5HT	CPA 2904
HHV8 PCR	PHE Colindale	Virus Reference Department Microbiology Services PHE Colindale 61 Colindale Avenue London NW9 5HT	CPA 2904
Hantavirus	RIPL, Porton Down	PHE Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	CPA 1612
HBV viral load (Health Care Workers)	Gartnavel, Glasgow	West of Scotland Specialist Virology Centre, Main Specimen Reception (Level 4), New Lister Building, Glasgow Royal Infirmary 10-16 Alexandra Parade, Glasgow G31 2ER, Scotland.	CPA 0406
Hepatitis C genotyping	PHE Colindale	Virus Reference Department Microbiology Services PHE Colindale 61 Colindale Avenue London NW9 5HT	CPA 2904

Analyte	Laboratory	Address	CPA/UKAS accreditation
Hepatitis E	PHE Colindale	Virus Reference Department Microbiology Services PHE Colindale 61 Colindale Avenue London NW9 5HT	CPA 2904
Herpes simplex acyclovir resistance phenotypic	PHE Colindale	Virus Reference Department Microbiology Services PHE Colindale 61 Colindale Avenue London NW9 5HT	CPA 2904
Herpes simplex acyclovir resistance genotypic	St James' Dublin	St. James's Hospital James's Street Dublin 8, Ireland	CPA 2901
Histoplasmosis	PHE Mycology Bristol	PHE Bristol Myrtle Road Kingsdown	CPA 0042
HIV2 PCR/VL	UCL		
HTLV-1/2 Antibodies/ PCR/ viral load	Colindale/ Colindale/ Imperial	Virus Reference Department Microbiology Services PHE Colindale 61 Colindale Avenue London NW9 5HT	CPA 2904
Hydatid Cysts (Echinococcus) antibodies	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market	CPA 2354

		Capper Street London WC1E 6JB	
Leptospira antibodies / PCR	Hereford RIPL	Leptospira Reference Unit Dept of Microbiology The County Hospital Union Walk Hereford Herefordshire HR1 2ER	CPA 1180
Leishmania	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	CPA 2354
Lymphogranuloma Venereum PCR	PHE Colindale	Virus Reference Department Microbiology Services PHE Colindale 61 Colindale Avenue London NW9 5HT	CPA 2904
Lyme Disease	RIPL	PHE Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	CPA 1612

Analyte	Laboratory	Address	CPA/UKAS accreditation
Malaria antibodies / PCR	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	CPA 2354
MRSA typing	PHE Centre for Infections	AMRHAI PHE Colindale Bacteriology 61 Colindale Avenue LONDON NW9 5HT Tel: 020 8200 4400 ext: 6511	CPA 1834
Mumps PCR	PHE Colindale	Virus Reference Department Microbiology Services PHE Colindale 61 Colindale Avenue London NW9 5HT	CPA 2904
Mycobacterium identification and sensitivity	Newcastle PHE	PHE Newcastle Mycobacterium Reference Unit Level 2, Freeman Hospital High Heaton, Newcastle NE7 7DN	CPA 0200
Nocardia	PHE Colindale	Department for Bioanalysis & Horizon Technologies PHE Colindale 61 Colindale Avenue LONDON NW9 5HT	CPA 2792

Analyte	Laboratory	Address	CPA/UKAS accreditation
Ovine Chlamydia antibodies / PCR	Bristol PHE / AHVLA, Weybridge Laboratory Services.	PHE Bristol Myrtle Road Kingsdown	CPA 0042
Pertussis antibodies	PHE Colindale	Virus Reference Department Microbiology Services PHE Colindale 61 Colindale Avenue London NW9 5HT	CPA 2904
Polio antibodies	PHE Colindale	Virus Reference Department Microbiology Services PHE Colindale 61 Colindale Avenue London NW9 5HT	CPA 2904
Q Fever antibodies / PCR	Bristol PHE / RIPL	PHE Bristol Myrtle Road Kingsdown	CPA 0042
Rabies antibodies / PCR	AHVLA, Weybridge Laboratory Services	Central Veterinary Laboratory Weybridge	UKAS 0941 ISO17025
Rickettsia serology / PCR	RIPL, Porton Down	PHE Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	CPA 1612
Rubella PCR	PHE Colindale	Virus Reference Department Microbiology Services PHE Colindale 61 Colindale Avenue London NW9 5HT	CPA 2904

Analyte	Laboratory	Address	CPA/UKAS accreditation
Salmonella serotyping	PHE Colindale	Gastrointestinal bacterial reference unit (GBRU) PHE Colindale Bacteriology 61 Colindale Avenue LONDON NW9 5HT Tel: 020 8200 4400	CPA 1683
Severe Acute Respiratory Syndrome	PHE Colindale	Virus Reference Department Microbiology Services PHE Colindale 61 Colindale Avenue London NW9 5HT	CPA 2904
Schistosomiasis antibodies	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	CPA 2354
Shigella/Salmonella	PHE Colindale	Gastrointestinal bacterial reference unit (GBRU) PHE Colindale Bacteriology 61 Colindale Avenue LONDON NW9 5HT Tel: 020 8200 4400	CPA 1683

Analyte	Laboratory	Address	CPA/UKAS accreditation
Strongyloides antibodies	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	CPA 2354
Toxocara	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	CPA 2354
Trichinosis	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	CPA 2354
Trypanosomiasis	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	CPA 2354

Analyte	Laboratory	Address	CPA/UKAS accreditation
VZ antibodies / typing	Great Ormond Street Hospital	Great Ormond Street Hospital NE Thames Regional Genetics Service Laboratories	
West Nile Virus	RIPL, Porton Down	PHE Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	CPA 1612
Yersinia	PHE Colindale	Gastrointestinal bacterial reference unit (GBRU) PHE Colindale Bacteriology 61 Colindale Avenue LONDON NW9 5HT	CPA 1683
Yellow Fever	RIPL, Porton Down	PHE Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	CPA 1612

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8.0 FEEDBACK ON OUR PATHOLOGY SERVICES AND COMPLAINTS PROCEDURE

Any complaints should be directed to the Clinical or Laboratory Managers – please make any reservations you may have about the quality of any aspect of the service known to us as soon as possible: we take your complaints very seriously.

Any suggestions from users on how this user guide could be improved would be welcome for inclusion in future edtions. Please forward suggestions to Ben Kirkman, Quality Manager (ben.kirkman@cmft.nhs.uk) or ben.kirkman@phe.gov.uk or to the following address:

Ben Kirkman
Quality Manager
Manchester Medical Microbiology Partnership
PO Box 209
Clinical Sciences Building
Manchester Royal Infirmary
Oxford Road
Manchester M13 9WZ

Please also let us know about new services you would wish to see developed.

9.0 PATIENT CONSENT DISCLOSURE

9.1 While several hundred laboratory tests are performed on site, for some rare or complex tests patient specimens may be sent to specialist laboratories elsewhere which have the necessary expertise. In some cases there will be only one specialist laboratory in the whole country which performs a particular test, meaning using referral laboratories is essential.

There is a detailed policy in place to govern how we choose these referral laboratories. They are selected for their expertise and their quality standards. We regularly check their accreditation status, which gives us assurance that they have procedures in place for the protection of information.
We also have specialist laboratories within the DLM and we receive specimens from around the country. Therefore our laboratories have procedures in place for the protection of information.
When specimens are sent to a referral laboratory we need to send some 'patient identifiers' such as name and date of birth. In some tests it is essential to send further information, for example, symptoms or travel information, to allow the referral laboratory to interpret the results for the individual patient. In some tests ethnic origin and family details may need to be shared with the referral laboratory.

Consent to a specimen being taken and analysed is implied by the patient presenting to the point of specimen collection. The responsibility for obtaining informed consent for the tests(s) resides with the individual ordering the test. Informed

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consent should cover all the tests being done, implications of their results and disclosure of clinical and personal details to personnel (in the requesting organisation and any other healthcare organisations involved in providing the test).

9.2 Laboratory Policy on Protection of Personal Information

The laboratory adheres to Central Manchester University Hospital FoundationTrust's policies on data protection and disclosure. The following policy can befound on the Trust intranet site:

Confidentiality Code of Conduct and Information Disclosure Policy ON4-3437.

In addition the Trust also produces a patient information leaflet entitled "YourInformation" which can be accessed by clicking on the following link:

http://www.cmft.nhs.uk/media/4448/TIG%2039%2008.pdf

9.3 THE HUMAN TISSUE ACT AND THE MMMP

Central Manchester University Hospitals NHS Foundation Trust and the University Hospital of South Manchester NHS Foundation Trust are licensed by the HTA to undertake examinations of post mortem samples submitted by clinical consultants and pathologists – the MMMP falls within this scope. Under the license, the samples may be retained until the examination has been completed and in line with the sample retention policies.

It is the obligation of the requesting clinician or pathologist to ensure that examination of samples they submit to MMMP have been requested by the coroner or appropriate consent has been obtained from the deceased person or their relatives.

Only the specific examinations requested by the sending clinician or pathologist may be performed. It must be assumed that the coroner has not asked for any other examinations to be performed and consent has not been obtained for any other work and so this would be outside the scope of the licence.

If additional work on samples from the deceased is thought necessary by the medical microbiologist or virologist they must obtain written confirmation of consent from the sending departments.

All relevant material is stored securely and under conditions which maintain the integrity of the sample if possible and confidentiality is maintained in compliance with Caldicott principles as are all samples received into the Partnership. Following processing, relevant material is only retained for the period of time specified by the retention policy. It may also be retained if it is likely to be of value for research

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under research ethics committee approval. Residual relevant material once outside of the retention policies must be discarded sensitively.

If the sender of relevant material requests tests not performed by the MMMP or a PHE Reference Laboratory the sending clinician or pathologist may request the return of the material.

9.4 Medico – legal specimens

Any specimens submitted for medico – legal purposes should have documentation accompanying these specimens to provide an unbroken chain of evidence.

10.0 RESEARCH & DEVELOPMENT

Research and development are key parts of the activity of MMMP and contribute to the scientific basis of the advice and services that the Partnership provides, both for clinical and public health microbiology. Current R&D activity spans:

- Vaccine evaluation for clinical trials performed under MHRA GCLP: e.g. meningococcal, pneumococcal
- Serosurveys eg measles, mumps, rubella, varicella, pneumococcal
- Technology: e.g. techniques for rapid diagnosis and molecular epidemiology
- Evaluation of new platforms eg MesoScale Discovery Quickplex
- Public health microbiology: e.g. collaborative projects on meningococcal infections and gastrointestinal infections

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